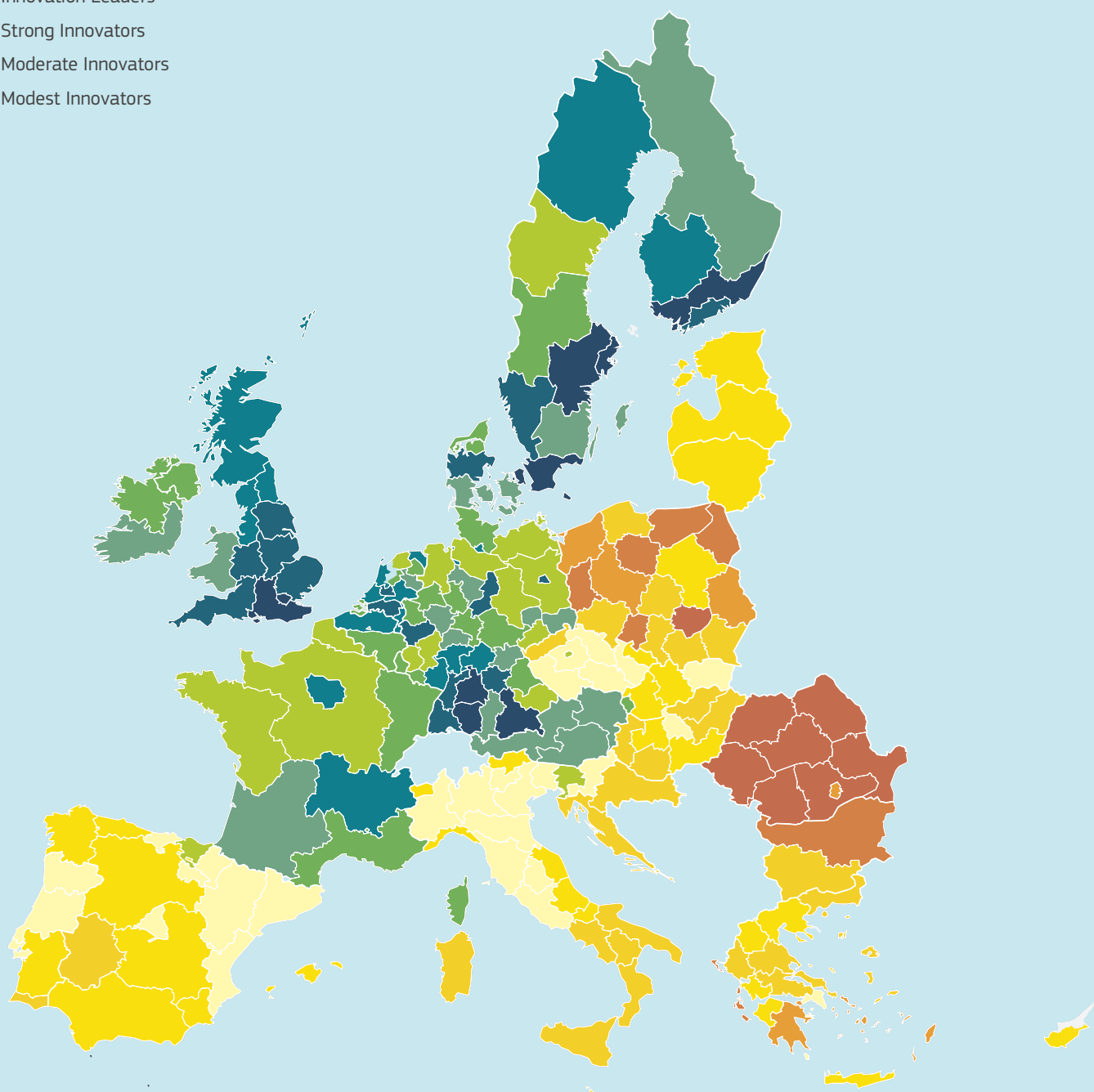


- ● ● Innovation Leaders
- ● ● Strong Innovators
- ● ● Moderate Innovators
- ● ● Modest Innovators



Regional Innovation Scoreboard 2017

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Directorate-General for Research and Innovation
Unit A4 – Analysis and monitoring of national research policies
and

Directorate-General for Regional and Urban Policy
Unit B1 – Economic Analysis
Unit G1 – Competence Centre Smart and Sustainable Growth

The Regional Innovation Scoreboard report, executive summaries in 23 languages, an accompanying methodology report, as well as regional profiles for all regions are available at: https://ec.europa.eu/growth/industry/innovation/facts-figures/regional_en

Acknowledgements:

The authors are grateful to all Member States and other European countries which have made available regional data from their Community Innovation Survey. Without these data, the construction of the Regional Innovation Scoreboard would not have been possible. All maps in this report have been created by Directorate-General for Regional and Urban Policy, Unit B1 – Economic Analysis.

More information on the European Union is available on <http://europa.eu/>

Print	ISBN 978-92-79-67689-5	ISSN 2315-2117	doi:10.2873/469382	ET-BC-17-001-EN-C
Pdf	ISBN 978-92-79-67688-8	ISSN 2315-2125	doi:10.2873/593800	ET-BC-17-001-EN-N

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Regional **Innovation** Scoreboard 2017



TABLE OF CONTENTS

4	EXECUTIVE SUMMARY
6	1. INTRODUCTION
7	2. RIS INDICATORS, REGIONS AND DATA AVAILABILITY
7	2.1 Indicators
8	2.2 Regional coverage
11	2.3 Regional data availability
14	2.4 Structural differences
15	3. REGIONAL INNOVATION PERFORMANCE
15	3.1 Regional performance groups
19	3.2 Ranking of regions
21	3.3 Differences in regional performance within countries
35	3.4 Performance changes over time
37	3.5 Comparison with the Regional Competitiveness Index
38	4. PERFORMANCE MAPS PER INDICATOR
57	5. RIS METHODOLOGY
57	5.1 Missing data: imputations
58	5.2 Composite indicators
58	5.3 Performance group membership
59	ANNEX 1: RIS INDICATORS
64	ANNEX 2: REGIONAL INNOVATION PERFORMANCE GROUPS
70	ANNEX 3: RIS NORMALISED DATABASE
82	ANNEX 4: REGIONAL PROFILES

Executive summary

This 8th edition of the Regional Innovation Scoreboard (RIS) provides a comparative assessment of performance of innovation systems across 220 regions of 22 EU Member States, Norway, Serbia, and Switzerland. In addition, Cyprus, Estonia, Latvia, Lithuania, Luxembourg, and Malta are included at the country level, as in these countries, NUTS 1 and NUTS 2 levels are identical to the country territory.

The RIS accompanies the European Innovation Scoreboard (EIS), which assesses performance of national innovation systems. Where the EIS provides an annual benchmark of the innovation performance of Member States, as well as other European countries and regional neighbours, regional innovation benchmarks are less frequent and less detailed due to a general lack of innovation data at the regional level. The Regional Innovation Scoreboard addresses this gap by providing statistical facts on regions' innovation performance. Compared to the EIS, the RIS has a stronger focus on the performance of small and medium-sized enterprises (SMEs).

Regional performance groups

Similar to the EIS, where countries are classified into four innovation performance groups, Europe's regions have been classified into regional Innovation Leaders (53 regions), regional Strong Innovators (60 regions), regional Moderate Innovators (85 regions), and regional Modest Innovators (22 regions). A more detailed breakdown of these performance groups is obtained by splitting each group into a top one-third (assigned with a '+'), middle one-third, and bottom one-third (assigned with a '-') regions. The most innovative regions will be Innovation Leaders +, and the least innovative regions will be Modest - Innovators. Only one country has regions in more than two different performance groups, although 12 countries have regions in four or more different performance sub-groups, as shown in the map below.

The most innovative regions are typically in the most innovative countries

The Innovation Leaders perform best on all indicators, in particular on those indicators measuring the performance of their research system (scientific publications) and business innovation (shares of innovative enterprises). Most of the Regional Innovation Leaders are located in countries identified as Innovation Leaders in the European Innovation Scoreboard, and almost all of the Regional Moderate and Modest Innovators are located in countries identified as Moderate and Modest Innovators. However, regional 'pockets of excellence' can be identified in some Moderate Innovator countries (for instance, *Praha (Prague)* in the Czech Republic, *Bratislavský kraj* in Slovakia, and *País Vasco (Basque Country)* in Spain), while some regions in Innovation Leader and Strong Innovator countries lag behind.

Rank results revealed: Stockholm most innovative region in the EU

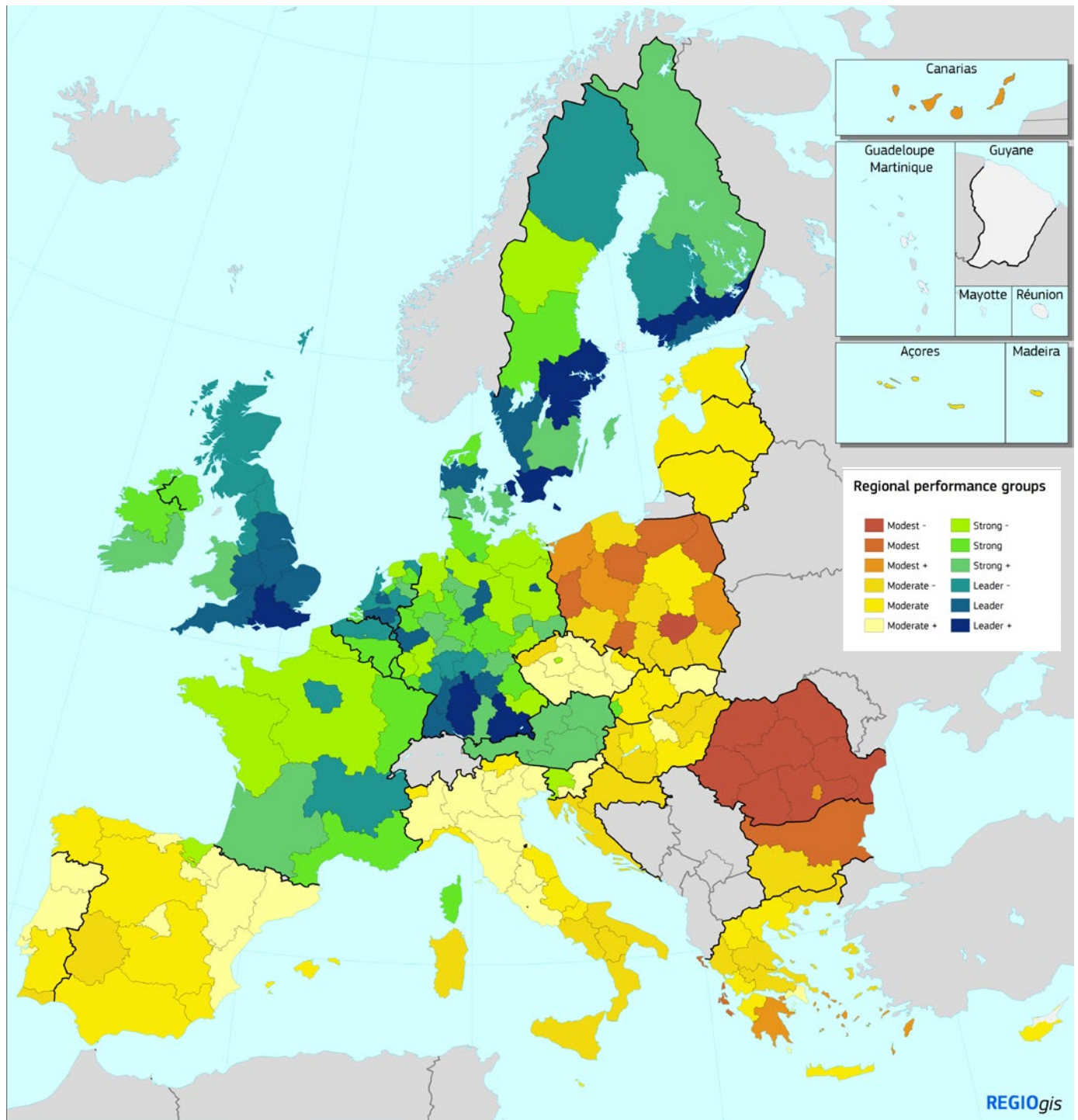
Whereas previous RIS reports only showed group membership for each of the regions, the 2017 report reveals individual rank results. The most innovative region in the EU is *Stockholm* in Sweden, followed by *Hovedstaden* in Denmark, and *South East* in the United Kingdom. The overall most innovative region in Europe is *Zürich* in Switzerland.

For most regions innovation performance has improved over time

For 128 out of 216 regions, or almost 60% of regions, performance has increased. For the regional Innovation Leaders, this share is above 75%, for the regional Strong and Moderate Innovators, it is close to 55%, but for the regional Modest Innovators, it is only close to 30%. Performance reductions are observed mostly in geographically peripheral regions in Europe. Performance has increased for all regions in Austria, Belgium, France, the Netherlands, Norway, Slovakia, Switzerland, and the United Kingdom, and for more than 50% of regions in Greece, Italy, Poland, and Sweden. Performance has decreased for all regions in Romania, and for more than 50% of regions in the Czech Republic, Denmark, Finland, Germany, Hungary, Portugal, and Spain. Over time, there has been a process of divergence in regional performance with increasing performance differences between regions.

Strong link between innovation and regional competitiveness

There is a strong and positive link between regional innovation performance and regional competitiveness, as shown by a comparison of the results in this report with those measuring regional competitiveness in the European Commission's Regional Competitiveness Index.



For Cyprus, Estonia, Latvia, Lithuania, Luxembourg and Malta, performance group membership is identical to that in the European Innovation Scoreboard 2017 report. For these countries, the corresponding colour codes for middle one-third regions have been used.

RIS methodology

The RIS 2017 replicates the European Innovation Scoreboard methodology used at national level to measure performance of regional systems of innovation. The RIS 2017 uses data for 220 regions across Europe for 18 of the 27 indicators used in the EIS 2017. The measurement framework of the EIS 2017 has been refined, resulting in a different and larger set of 27 indicators in the EIS 2017 as compared to the EIS 2016. This refined measurement framework has also been

adopted in the RIS 2017. Compared to the RIS 2016, the number of indicators has increased as regional data have become available for Lifelong learning (one of the new EIS indicators), International scientific co-publications, Most-cited publications, Public-private co-publications, Trademark applications, and Design applications. Regional coverage has improved as both Serbia and Switzerland have been included with four and seven regions, respectively.

1. Introduction

The 2017 Regional Innovation Scoreboard (RIS) is a regional extension of the 2017 European Innovation Scoreboard (EIS).¹ The EIS provides a comparative assessment of the performance of innovation systems at the country level of the EU Member States, other European countries and regional neighbours. Innovation performance is measured using a composite indicator – the Summary Innovation Index – which summarises the performance based on 27 indicators. These indicators are grouped into four main types – Framework conditions, Investments, Innovation activities, and Impacts – and 10 innovation dimensions. The EIS measurement framework is presented in (Table 1).

Table 1: Measurement framework of the 2017 European Innovation Scoreboard

FRAMEWORK CONDITIONS

Human resources

- 1.1.1 New doctorate graduates
- 1.1.2 Population aged 25-34 with tertiary education
- 1.1.3 Lifelong learning

Attractive research systems

- 1.2.1 International scientific co-publications
- 1.2.2 Top-10% most cited publications
- 1.2.3 Foreign doctorate students

Innovation-friendly environment

- 1.3.1 Broadband penetration
- 1.3.2 Opportunity-driven entrepreneurship

INVESTMENTS

Finance and support

- 2.1.1 R&D expenditure in the public sector
- 2.1.2 Venture capital expenditures

Firm investments

- 2.2.1 R&D expenditure in the business sector
- 2.2.2 Non-R&D innovation expenditures
- 2.2.3 Enterprises providing training to develop or upgrade ICT skills of their personnel

INNOVATION ACTIVITIES

Innovators

- 3.1.1 SMEs with product or process innovations
- 3.1.2 SMEs with marketing or organisational innovations
- 3.1.3 SMEs innovating in-house

Linkages

- 3.2.1 Innovative SMEs collaborating with others
- 3.2.2 Public-private co-publications
- 3.2.3 Private co-funding of public R&D expenditures

Intellectual assets

- 3.3.1 PCT patent applications
- 3.3.2 Trademark applications
- 3.3.3 Design applications

IMPACTS

Employment impacts

- 4.1.1 Employment in knowledge-intensive activities
- 4.1.2 Employment fast-growing enterprises of innovative sectors

Sales impacts

- 4.2.1 Medium and high tech product exports
- 4.2.2 Knowledge-intensive services exports
- 4.2.3 Sales of new-to-market and new-to-firm innovations

As regions are important engines of economic development, innovation performance deserves particular attention at the regional level. Regional Systems of Innovation have therefore become the focus of many academic studies and policy reports.² Economic literature has identified three stylized facts: 1) innovation is not uniformly distributed across regions, 2) innovation tends to be spatially concentrated over time, and 3) even regions with similar innovation capacity have different economic growth patterns. However, attempts to monitor Regional Systems of Innovation and regions' innovation performance are severely hindered by a lack of regional innovation data.

The RIS addresses this gap and provides statistical facts on regions' innovation performance. Regional innovation performance is measured using a composite indicator – the Regional Innovation Index (RII) – which summarizes the performance on 18 indicators. The RIS 2017 implements the revised measurement framework introduced in the EIS 2017. Compared to the RIS 2016, regional data availability has improved, as regional Community Innovation Survey (CIS) data are now available for more regions, and regional data are available for more indicators, including International co-publications, Most-cited publications, Public-private co-publications, Trademark applications, and Design applications.

Section 2 discusses the availability of regional data, the indicators that are used for constructing the Regional Innovation Index, and the regions which are included in the RIS 2017. Section 2 also discusses the indicators that will be included in the regional profiles to identify structural differences between regions. Annex 4 provides an example of a regional profile for Brussels. Profiles for all 220 regions are available on the RIS website: http://ec.europa.eu/growth/industry/innovation/facts-figures/regional_en.

Section 3 presents results for the Regional Innovation Index and group membership in four distinct regional innovation performance groups. Section 3 also discusses performance trends over time. Section 4 shows performance maps and the best performing regions for each indicator. Section 5 discusses the full methodology for calculating the Regional Innovation Index and for imputing missing data.

The years used in the titles of the RIS reports refer to the years in which the respective editions were published, i.e. RIS 2016, RIS 2014, RIS 2012, RIS 2009, and RIS 2006. For the RIS 2017, most recent data refer to 2016 for one indicator, 2015 for six indicators, 2014 for nine indicators, and 2011 for two indicators. A reference to the most recent performance year (RII2017) in this report should thus be interpreted as referring to data about three years older than the 2017 reference year.

¹ The annual country-level reports have been published under the name "European Innovation Scoreboard" until 2009, as "Innovation Union Scoreboard" (IUS) between 2010 and 2015, and once again as "European Innovation Scoreboard" from 2016 onwards.

² Annex 6 to the Regional Innovation Scoreboard 2014 report provides a more detailed discussion of regional systems of innovation.

2. RIS indicators, regions and data availability

This chapter discusses the indicators used in the Regional Innovation Scoreboard 2017 (section 2.1), the regional coverage (section 2.2), regional data availability (section 2.3), and the indicators selected for the regional profiles to highlight possible structural differences between regions (section 2.4).

2.1 Indicators

In the RIS, regional innovation performance should ideally be measured using the full measurement framework of the European Innovation Scoreboard (EIS), i.e. using regional data for the same indicators applied to measure innovation performance at the country level. However, for many indicators used in the EIS, regional data are not available.

The RIS is limited to using regional data for 18 of the 27 indicators used in the EIS (**Table 2**). For several indicators, slightly different definitions have been applied, as regional data would not be available if the definitions were the same as in the EIS:

- For the Population with completed tertiary education, the RIS uses data for the age group 30-34. The indicator in the EIS covers the broader age group 25-34. Tabulated regional data for this age group are not available from Eurostat, so the same age group is used as in the RIS 2016;
- For two indicators using data from the Community Innovation Survey (CIS) – Non-R&D innovation expenditures and Sales of new-to-market and new-to-firm innovations – the data refer only to SMEs and not to all companies;³
- For PCT patent applications, regional data are not available, and instead regional data on EPO patent applications are used;
- For Trademark applications, only EU trademark applications have been used. The EIS uses the aggregate of both EUIPO and WIPO (Madrid Protocol) applications, but regional data for the latter are not available;
- For Design applications, the EIS uses data on individual design applications, for which regional data are not available. The RIS uses data on design applications, where a design applications can include more than one individual design application;
- For Employment in knowledge-intensive activities, regional data are also not available, and instead Employment in medium-high and high tech manufacturing and knowledge-intensive services is used;
- For Medium and high tech product exports, regional data are not available, and instead regional estimates are used for the Exports of medium-high and high technology-intensive manufacturing industries.

The indicators are explained in more detail in **Annex 1**.

³ Regional Community Innovation Survey (CIS) data are not publicly available and have been made available explicitly for the Regional Innovation Scoreboard by national statistical offices. The CIS assigns the innovation activities of multi-establishment enterprises to the region where the head office is located. There is a risk that regions without head offices score lower on the CIS indicators, as some of the activities in these regions are assigned to those regions with head offices. In order to minimize this risk, the regional CIS data excludes large firms (which are more likely to have multiple establishments in different regions) and focuses on SMEs only. More details are available in the RIS 2017 Methodology Report.

Table 2: A comparison of the indicators included in the European Innovation Scoreboard and the Regional Innovation Scoreboard

	EIS 2017	RIS 2017
FRAMEWORK CONDITIONS		
Human resources	<i>Doctorate graduates per 1000 population aged 25-34</i>	<i>No regional data</i>
	Percentage of population aged 25-34 having completed tertiary education	Smaller age group 30-34
	Life-long learning, share of population aged 25-64 enrolled in education or training aimed at improving knowledge, skills and competences	Identical
Attractive research systems	International scientific co-publications per million population	Identical
	Scientific publications among the top-10% most cited publications worldwide as percentage of total scientific publications of the country	Identical
	<i>Foreign doctorate students as a percentage of all doctorate students</i>	<i>No regional data</i>
Innovation-friendly environment	<i>Broadband penetration (Share of enterprises with a maximum contracted download speed of the fastest fixed internet connection of at least 100 Mb/s)</i>	<i>No regional data</i>
	<i>Opportunity-driven entrepreneurship (Motivational index)</i>	<i>No regional data</i>
INVESTMENTS		
Finance and support	R&D expenditure in the public sector as percentage of GDP	Identical
	<i>Venture capital expenditure as percentage of GDP</i>	<i>No regional data</i>
Firm investments	R&D expenditure in the business sector as percentage of GDP	Identical
	Non-R&D innovation expenditures as percentage of total turnover	For SMEs only
	Enterprises providing training to develop or upgrade ICT skills of their personnel	<i>No regional data</i>
INNOVATION ACTIVITIES		
Innovators	SMEs introducing product or process innovations as percentage of SMEs	Identical
	SMEs introducing marketing or organisational innovations as percentage of SMEs	Identical
	SMEs innovating in-house as percentage of SMEs	Identical
Linkages	Innovative SMEs collaborating with others as percentage of SMEs	Identical
	Public-private co-publications per million population	Identical
	<i>Share of private co-funding of public R&D expenditures</i>	<i>No regional data</i>
Intellectual assets	PCT patent applications per billion GDP*	EPO patent applications
	Trademark applications per billion GDP*	European trademark applications
	Individual design applications per billion GDP*	Design applications
IMPACTS		
Employment impacts	Employment in knowledge-intensive activities (manufacturing and services) as percentage of total employment	Employment in medium-high and high tech manufacturing and knowledge-intensive services
	<i>Employment in fast-growing firms of innovative sectors</i>	<i>No regional data</i>
Sales impacts	Medium and high tech product exports as percentage of total product exports	Exports of medium-high and high technology-intensive manufacturing industries
	<i>Knowledge-intensive services exports as percentage of total service exports</i>	<i>No regional data</i>
	Sales of new-to-market and new-to-firm innovations as percentage of total turnover	For SMEs only

* GDP in Purchasing Power standards

2.2 Regional coverage

The Regional Innovation Scoreboard covers 220 regions in 22 EU Member States, Norway, Serbia and Switzerland at different NUTS levels.⁴ The NUTS classification (Nomenclature of territorial units for statistics) is a hierarchical system for dividing the economic territory of the EU, which distinguishes between three levels: NUTS 1 captures major socio-economic regions, NUTS 2 captures basic regions for the application of regional policies, and NUTS 3 captures small regions for specific diagnoses.

Depending on differences in regional data availability, the RIS covers 28 NUTS 1 level regions and 192 NUTS 2 level regions (**Table 3**). For 15 regions, the NUTS 2 level is identical to the NUTS 1 level (i.e. nine regions in Germany, two regions in Spain and Portugal, and one region in Greece and Hungary, these regions are highlighted with an “*” in **Table 3**). In addition, the EU Member States Cyprus, Estonia, Latvia, Lithuania, Luxembourg, and Malta are included at the country level, as in these countries NUTS 1 and NUTS 2 levels are identical to the country territory.

⁴ For Serbia, official NUTS codes are not available as Eurostat and Serbia have not yet agreed on statistical regions for the country. In this report, the following unofficial codes will be used: RS11 for Belgrade, RS12 for Vojvodina, RS21 for Šumadija and Western Serbia, and RS22 for Southern and Eastern Serbia.

For the countries included at the country level, their performance levels relative to the EU28 scores from the EIS 2017 have been used.

With some countries only being covered at the NUTS 1 level, there can be significant differences in the average size of regions. For instance, the average population of a NUTS 1 region in France (total population of almost

67 million) is 7.4 million, whereas it is 2.9 million for an average NUTS 2 region in Italy (total population of almost 61 million). The average unit of regional innovation performance analysis is thus 2.5 times larger in France than in Italy. These differences in unit size have implications for the variation of performance scores within countries. In general, a higher number of regions will lead to larger differences between regions in the same country.

Table 3: NUTS 1 and NUTS 2 regions included in RIS 2017 by country

COUNTRY		NUMBER OF REGIONS AT NUTS LEVEL		AVERAGE POPULATION SIZE (2016)	REGIONS (NUTS CODE)	
		1	2			
BE	Belgium	3		3,777,000	Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest (BE1)	Vlaams Gewest (BE2) Région Wallonne (BE3)
BG	Bulgaria	2		3,577,000	Severna i yugoiztochna Bulgaria (BG3)	Yugozapadna i yuzhna tsentralna Bulgaria (BG4)
CZ	Czech Republic		8	1,319,000	Praha (CZ01) Střední Čechy (CZ02) Jihozápad (CZ03) Severozápad (CZ04)	Severovýchod (CZ05) Jihovýchod (CZ06) Střední Morava (CZ07) Moravskoslezsko (CZ08)
DK	Denmark		5	1,141,000	Hovedstaden (DK01) Sjælland (DK02) Syddanmark (DK03)	Midtjylland (DK04) Nordjylland (DK05)
DE	Germany		38	2,163,000	Stuttgart (DE11) Karlsruhe (DE12) Freiburg (DE13) Tübingen (DE14) Oberbayern (DE21) Niederbayern (DE22) Oberpfalz (DE23) Oberfranken (DE24) Mittelfranken (DE25) Unterfranken (DE26) Schwaben (DE27) Berlin (DE30)* Brandenburg (DE40)* Bremen (DE50)* Hamburg (DE60)* Darmstadt (DE71) Gießen (DE72) Kassel (DE73) Mecklenburg-Vorpommern (DE80)*	Braunschweig (DE91) Hannover (DE92) Lüneburg (DE93) Weser-Ems (DE94) Düsseldorf (DEA1) Köln (DEA2) Münster (DEA3) Detmold (DEA4) Arnsberg (DEA5) Koblenz (DEB1) Trier (DEB2) Rheinhausen-Pfalz (DEB3) Saarland (DECO)* Dresden (DED2) Chemnitz (DED4) Leipzig (DED5) Sachsen-Anhalt (DEEO)* Schleswig-Holstein (DEFO)* Thüringen (DEGO)*
IE	Ireland		2	2,362,000	Border, Midland and Western (IE01)	Southern and Eastern (IE02)
EL	Greece		13	830,000	Anatoliki Makedonia, Thraki (EL51) Kentriki Makedonia (EL52) Dytiki Makedonia (EL53) Ipeiros (EL54) Thessalia (EL61) Ionia Nisia (EL62) Dytiki Ellada (EL63)	Stereia Ellada (EL64) Peloponnisos (EL65) Attiki (EL30)* Voreio Aigaio (EL41) Notio Aigaio (EL42) Kriti (EL43)
ES	Spain ⁵		17	2,445,000	Galicia (ES11) Principado de Asturias (ES12) Cantabria (ES13) País Vasco (ES21) Comunidad Foral de Navarra (ES22) La Rioja (ES23) Aragón (ES24) Comunidad de Madrid (ES30)* Castilla y León (ES41)	Castilla-la Mancha (ES42) Extremadura (ES43) Cataluña (ES51) Comunidad Valenciana (ES52) Illes Balears (ES53) Andalucía (ES61) Región de Murcia (ES62) Canarias (ES70)*

⁵ For Spain, two NUTS 2 regions – Ciudad Autónoma de Ceuta (ES63) and Ciudad Autónoma de Melilla (ES64) – are not included due to limited data availability.

Table 3: NUTS 1 and NUTS 2 regions included in RIS 2017 by country

COUNTRY		NUMBER OF REGIONS AT NUTS LEVEL		AVERAGE POPULATION SIZE (2016)	REGIONS (NUTS CODE)	
		1	2			
FR	France ⁶	8		7,418,000	Île de France (FR1) Bassin Parisien (FR2) Nord - Pas-de-Calais (FR3) Est (FR4)	Ouest (FR5) Sud-Ouest (FR6) Centre-Est (FR7) Méditerranée (FR8)
HR	Croatia		2	2,095,000	Jadranska Hrvatska (HR03)	Kontinentalna Hrvatska (HR04)
IT	Italy		21	2,889,000	Piemonte (ITC1) Valle d'Aosta/Vallée d'Aoste (ITC2) Liguria (ITC3) Lombardia (ITC4) Provincia Autonoma Bolzano/Bozen (ITH1) Provincia Autonoma Trento (ITH2) Veneto (ITH3) Friuli-Venezia Giulia (ITH4) Emilia-Romagna (ITH5) Toscana (ITI1) Umbria (ITI2)	Marche (ITI3) Lazio (ITI4) Abruzzo (ITF1) Molise (ITF2) Campania (ITF3) Puglia (ITF4) Basilicata (ITF5) Calabria (ITF6) Sicilia (ITG1) Sardegna (ITG2)
HU	Hungary		7	1,404,000	Közép-Magyarország (HU10)* Közép-Dunántúl (HU21) Nyugat-Dunántúl (HU22) Dél-Dunántúl (HU23)	Észak-Magyarország (HU31) Észak-Alföld (HU32) Dél-Alföld (HU33)
NL	Netherlands		12	1,415,000	Groningen (NL11) Friesland (NL12) Drenthe (NL13) Overijssel (NL21) Gelderland (NL22) Flevoland (NL23)	Utrecht (NL31) Noord-Holland (NL32) Zuid-Holland (NL33) Zeeland (NL34) Noord-Brabant (NL41) Limburg (NL42)
AT	Austria	3		2,897,000	Ostösterreich (AT1) Südösterreich (AT2)	Westösterreich (AT3)
PL	Poland		16	2,373,000	Łódzkie (PL11) Mazowieckie (PL12) Małopolskie (PL21) Śląskie (PL22) Lubelskie (PL31) Podkarpackie (PL32) Świętokrzyskie (PL33) Podlaskie (PL34)	Wielkopolskie (PL41) Zachodniopomorskie (PL42) Lubuskie (PL43) Dolnośląskie (PL51) Opolskie (PL52) Kujawsko-Pomorskie (PL61) Warmińsko-Mazurskie (PL62) Pomorskie (PL63)
PT	Portugal		7	1,477,000	Norte (PT11) Algarve (PT15) Centro (PT16) Lisboa (PT17)	Alentejo (PT18) Região Autónoma dos Açores (PT20)* Região Autónoma da Madeira (PT30)*
RO	Romania		8	2,447,000	Nord-Vest (RO11) Centru (RO12) Nord-Est (RO21) Sud-Est (RO22)	Sud - Muntenia (RO31) Bucuresti - Ilfov (RO32) Sud-Vest Oltenia (RO41) Vest (RO42)
SI	Slovenia		2	1,032,000	Vzhodna Slovenija (SI03)	Zahodna Slovenija (SI04)
SK	Slovakia		4	1,357,000	Bratislavský kraj (SK01) Západné Slovensko (SK02)	Stredné Slovensko (SK03) Východné Slovensko (SK04)
FI	Finland ⁷		4	1,097,000	Helsinki-Uusimaa (FI1B) Etelä-Suomi (FI1C)	Länsi-Suomi (FI19) Pohjois- ja Itä-Suomi (FI1D)
SE	Sweden		8	1,231,000	Stockholm (SE11) Östra Mellansverige (SE12) Småland med öarna (SE21) Sydsverige (SE22)	Västsverige (SE23) Norra Mellansverige (SE31) Mellersta Norrland (SE32) Övre Norrland (SE33)

⁶ For France, the NUTS 1 region Départements d'outre-mer (FRA) is not included due to limited data availability.⁷ For Finland, the NUTS region Åland (FI20) is not included due to limited data availability.

Table 3: NUTS 1 and NUTS 2 regions included in RIS 2017 by country

COUNTRY		NUMBER OF REGIONS AT NUTS LEVEL		AVERAGE POPULATION SIZE (2016)	REGIONS (NUTS CODE)	
		1	2			
UK	United Kingdom	12		5,449,000	North East (UKC) North West (UKD) Yorkshire and The Humber (UKE) East Midlands (UKF) West Midlands (UKG) East of England (UKH)	London (UKI) South East (UKJ) South West (UKK) Wales (UKL) Scotland (UKM) Northern Ireland (UKN)
NO	Norway		7	744,100	Oslo og Akershus (NO01) Hedmark og Oppland (NO02) Sør-Østlandet (NO03) Agder og Rogaland (NO04)	Vestlandet (NO05) Trøndelag (NO06) Nord-Norge (NO07)
CH	Switzerland		7	1,119,000	Région lémanique (CH01) Espace Mittelland (CH02) Nordwestschweiz (CH03) Zürich (CH04)	Ostschweiz (CH05) Zentralschweiz (CH06) Ticino (CH07)
RS	Serbia ⁸		4	1,797,000	Belgrade (RS11) Vojvodina (RS12)	Šumadija and Western Serbia (RS21) Southern and Eastern Serbia (RS22)

2.3 Regional data availability

Regional innovation data for eight indicators are directly available from Eurostat. For the Population aged 30–34 having completed tertiary education, Lifelong learning, R&D expenditures in the public sector, R&D expenditures in the business sector, EPO patent applications, Trademark applications, Design applications, and Employment in medium-high/high tech manufacturing and knowledge-intensive services, regional data can be extracted from Eurostat's online regional database. For Exports of medium and high tech products, estimates have been used for Exports of medium-high and high technology-intensive manufacturing industries from a study prepared for the European Commission.⁹ For the six indicators using Community Innovation Survey (CIS) data, regional data are not directly available from Eurostat, and a special data request has been made to National Statistical Offices to obtain regional CIS data. For the three indicators using bibliometric data, regional data have been made available by CWTS (Leiden University) as part of a contract with the European Commission (DG Research and Innovation).

Regional CIS data request

To collect regional CIS data, data requests were made by Eurostat in 2016 to National Statistical Offices of most Member States, excluding those countries for which NUTS 1 and NUTS 2 levels are identical to the country territory, or countries for which national CIS samples are too small to allow them to deliver reliable regional-level data, and to Norway, Serbia, and Switzerland. Eurostat was able to share regional CIS 2014 data for 22 countries (Austria, Belgium, Bulgaria, Croatia, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Switzerland, and the United Kingdom) for the following indicators:

- Non-R&D innovation expenditure by SMEs (percentage of turnover in SMEs)
- SMEs innovating in-house (percentage of all SMEs)
- Innovative SMEs collaborating with others (percentage of all SMEs)
- SMEs with product or process innovation (percentage of all SMEs)
- SMEs with marketing or organisational innovations (percentage of all SMEs)
- Sales of new-to-market and new-to-firm innovations by SMEs (percentage of turnover in SMEs)

Regional CIS data are not publicly available and have been made explicitly available for the Regional Innovation Scoreboard by national statistical offices. The CIS assigns the innovation activities of multi-establishment enterprises to the region where the head office is located. There is a risk that regions without head offices score lower on the CIS indicators as some of the activities in these regions are assigned to those regions with head offices. In order to minimise this risk, the regional CIS data excludes large firms (which are more likely to have multiple establishments in different regions) and focuses on SMEs only. More details are available in the RIS 2017 Methodology Report.

⁸ The NUTS codes for Serbia are not official codes but are used as unofficial codes for ease of reference in the RIS 2017 and for producing the regional maps.

⁹ The 2015 study "Identifying Revealed Comparative Advantages in an EU Regional Context" has been prepared by the Lower Saxony Institute for Economic Research (NIW), the Vienna Institute for International Economic Studies (wiiw) and the Center for European Economic Research (ZEW).

Timeliness of regional data

For the RIS 2017, most recent data refer to 2016 for one indicator (International scientific co-publications) 2015 for six indicators (Population aged 30-34 with tertiary education, Lifelong learning, R&D expenditures in the public sector, R&D expenditures in the business sector, Public-private co-publications, and Employment in medium-high/high tech manufacturing and knowledge-intensive services), 2014 for nine indicators (Most-cited scientific publications, Non-R&D innovation expenditures, SMEs with product or process innovations, SMEs with marketing or organisational innovations, SMEs innovating in-house, Innovative SMEs collaborating with others, Trademark applications, Design applications, and Sales of new-to-market and new-to-firm innovations) and 2011 for two indicators (EPO patent applications and Exports of medium-high and high technology-intensive manufacturing industries).

Following the availability of the most recent data, the RIS 2017 will present a Regional Innovation Index (RII) for five reference years:

- RII2017 using regional CIS 2014 data and the most recent data available at 15 April 2017;
- RII2015 using data two years less timely than those used for the RII2017 (including regional CIS 2012 data);
- RII2013 using data four years less timely than those used for the RII2017 (including regional CIS 2010 data);
- RII2011 using data six years less timely than those used for the RII2017 (including regional CIS 2008 data);
- RII2009 using data eight years less timely than those used for the RII2017 (including regional CIS 2006 data).

Table 4: Regional data availability by indicator

	Data availability most recent year
International scientific co-publications	98.2%
Most-cited scientific publications	98.2%
Lifelong learning	97.7%
Population having completed tertiary education	97.3%
Public-private co-publications	97.3%
Trademark applications	91.8%
All indicators	91.2%
SMEs with product or process innovations	90.0%
SMEs with marketing or organisational innovations	90.0%
Innovative SMEs collaborating with others	90.0%
SMEs innovating in-house	90.0%
Exports of medium-high/high technology-intensive manufacturing	90.0%
R&D expenditures in the public sector	89.5%
R&D expenditures in the business sector	89.5%
EPO patent applications	89.1%
Employment in medium-high/high tech manufacturing and knowledge-intensive services	89.1%
Design applications	87.7%
Non-R&D innovation expenditures in SMEs	86.4%
Sales of new-to-market and new-to-firm innovations in SMEs	80.5%

Data availability by indicator and country

For the most recent year, data availability is 91.2%, i.e. regional data are available for 3,612 out of a maximum of 3,960 observations. Data availability differs by indicator, with highest data availability for the three indicators on publications using bibliometric data and two indicators on education using Labour Force Survey data (**Table 4**). Data availability is below average for all indicators using regional CIS data, in particular for the two indicators using expenditure data.

There are large differences in regional data availability across countries. Data availability is perfect at 100% for 10 countries, very good at 95% or more for another four countries, and good at 90% or more for four more countries (**Table 5**). Data availability is above 80% for both Greece and

Norway. For Greece, in particular regional data for EPO patent applications and Employment in medium-high & high-tech manufacturing and knowledge-intensive services are missing. For Norway, regional data for Trademark applications and Design applications are not available. Data availability for Ireland, the Netherlands and Sweden is relatively low as for these countries regional CIS 2014 data are not available.¹⁰ For Switzerland, regional CIS data are available but regional data are missing for both R&D expenditures in the public sector and business sector, and for all three indicators on Intellectual property applications (Patent, Trademark and Design applications). For Serbia, data availability is very low as regional data are only available for the indicators using CIS data.¹¹

Imputations for missing data

The full RIS 2017 database contains 19,800 data cells (220 regions, 18 indicators, and 5 years). An exact percentage for overall data availability has not been calculated, as for older years the database includes both real data and data already imputed in the RIS 2016. To improve data availability, several imputation techniques have been used to provide estimates for all missing data. Chapter 5 on the RIS methodology provides more details on the imputation techniques. **Annex 3** shows the most recent data for all regions and indicators after imputation.

Data availability after imputation improves to 99.3% with data missing for only 27 observations. For some regions, data could not be imputed as there was either no data for the higher NUTS aggregate or such data was considered to be unrepresentative. Data availability is 100% for almost all countries, except Portugal (98.4%) with one observation missing for both *Região Autónoma dos Açores* (PT20) and *Região Autónoma da Madeira* (PT30), Finland (97.2%) with one observation missing for *Helsinki-Uusimaa* (FI1B) and *Etelä-Suomi* (FI1C), Switzerland (94.4%) with data missing for all regions for Non-R&D innovation expenditures, and Serbia (77.8%) as data could not be imputed for four indicators.

Table 5: Regional data availability by country

		Data availability most recent year			Data availability most recent year
AT	Austria	100%	FI	Finland	97.2%
BE	Belgium	100%	HR	Croatia	94.4%
BG	Bulgaria	100%	SI	Slovenia	94.4%
CZ	Czech Republic	100%	IT	Italy	93.7%
DK	Denmark	100%	PT	Portugal	92.9%
FR	France	100%	All regions		91.2%
HU	Hungary	100%	NO	Norway	83.3%
RO	Romania	100%	EL	Greece	87.6%
SK	Slovakia	100%	IE	Ireland	66.7%
UK	United Kingdom	100%	SE	Sweden	66.7%
ES	Spain	99.7%	CH	Switzerland	61.1%
DE	Germany	99.6%	NL	Netherlands	57.4%
PL	Poland	98.6%	RS	Serbia	33.3%

¹⁰ For Ireland and the Netherlands, regional CIS data were also not available in previous versions of the RIS. For Sweden, regional CIS data were available in the RIS 2016, but no regional CIS 2014 data have been made available for the RIS 2017.

¹¹ Serbia has been included in the RIS 2017 to respect the fact that regional CIS data have been made available by the Statistical Office of the Republic of Serbia.

¹² The purchasing power standard, abbreviated as PPS, is an artificial currency unit. Theoretically, one PPS can buy the same amount of goods and services in each country. However, price differences across borders mean that different amounts of national currency units are needed for the same goods and services depending on the country. PPS are derived by dividing any economic aggregate of a country in national currency by its respective purchasing power parities.

2.4 Structural differences

In addition to changes to the main measurement framework, a need has emerged for additional contextual analyses that will explain the impact of structural differences on observed scores. Brief analyses of structural differences by region will be performed in the regional profiles. This section will discuss the importance of these structural differences for a better understanding of differences between countries in the performance on particular indicators.

Of particular importance are differences in economic structures, with differences in the share of industry in GDP an important factor that could explain why regions perform better or worse on indicators like business R&D expenditures, EPO patent applications and innovative enterprises. The regional profiles will for each region include, if data are available from Eurostat, data on the composition of regional employment, using average employment shares for the years 2011-2015, for the following industries: Agriculture & Mining, Manufacturing, Utilities & Construction, Services, and Public administration.

Enterprise characteristics are important for explaining differences in R&D spending and innovation activities. Regional data on the share of enterprise births are used as a measure for possible differences in regional entrepreneurship.

Densely populated areas are also more likely to be more innovative for several reasons. First, with people and enterprises being at closer distance, knowledge diffuses more easily. Second, in urbanised areas there tends to be a concentration of government and educational services. These provide better training opportunities and also employ above-average shares of highly educated people. Structural data also include indicators measuring the size of the regional economy, including two indicators measuring GDP per capita, both in Euros and in purchasing power standards¹², which are a better measure for interpreting real income differences between regions.

3. Regional innovation performance

3.1 Regional performance groups

Europe's regions are grouped into four innovation performance groups according to their performance on the Regional Innovation Index relative to that of the EU. The thresholds in relative performance are the same as those used in the European Innovation Scoreboard:

- The first group of **Innovation Leaders** includes 53 regions with performance more than 20% above the EU average.
- The second group of **Strong Innovators** includes 60 regions with performance between 90% and 120% of the EU average.
- The third group of **Moderate Innovators** includes 85 regions with performance between 50% and 90% of the EU average.
- The fourth group of **Modest Innovators** includes 22 regions with performance below 50% of the EU average.

Higher performance groups score better on individual indicators

The most innovative regions, on average, perform best on most indicators as shown in the radar graph (**Figure 1**), where the line for the Modest Innovators is largely embedded within the line for the Moderate Innovators, which is largely embedded within the line for the Strong Innovators. The line for the Innovation Leaders shows that these, on average, have the highest performance on all indicators, except on Non-R&D innovation expenditures, where the Moderate Innovators have the highest average

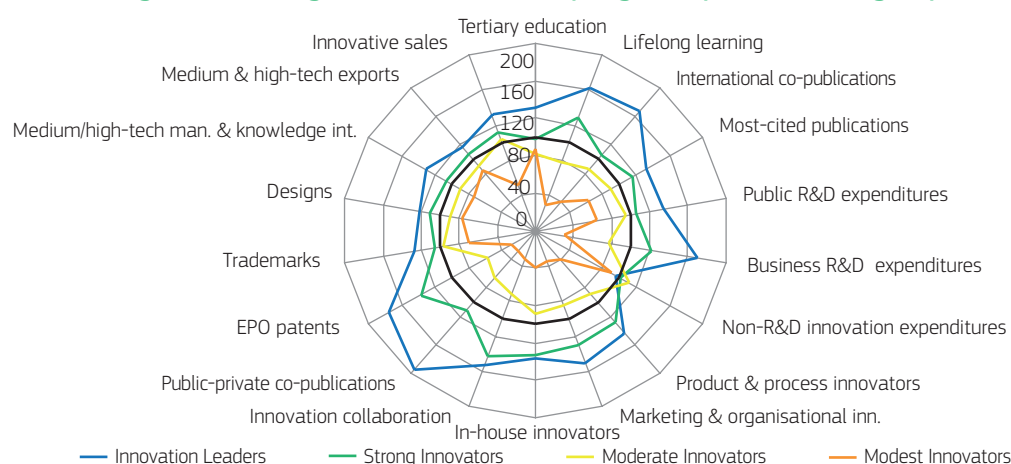
performance (**Figure 1** and **Table 6**).¹³ The Innovation Leaders perform particularly well, with average performance levels 50% or more above the EU average, on Public-private co-publications (194%), R&D expenditures in the business sector (172%), International scientific co-publications (167%), EPO patent applications (166%), Lifelong learning (163%), Innovative SMEs collaborating with others (154%), and SMEs with marketing or organisational innovations (151%).

The Strong Innovators perform close to average (between 20% below or 20% above the EU average) on most indicators, except for Innovative SMEs collaborating with others (141%), SMEs innovating in-house (133%), EPO patent applications (131%), SMEs with marketing or organisational innovations (130%), Lifelong learning (129%), SMEs with product or process innovations (128%), and Business R&D expenditures (121%).

The Moderate Innovators perform below the EU average on all indicators, except for Non-R&D innovation expenditures (112%), Sales due to new-to-market and new-to-firm innovations (104%), and Trademark applications (103%). Performance is below 70% of the EU average for Public-private co-publications (67%), and EPO patent applications (64%), both of which relate to business performance.

The Modest Innovators perform below the EU average on all indicators, in particular on Public-private co-publications (28%), Lifelong learning (30%), R&D expenditures in the business sector (30%), Innovative SMEs collaborating with others (33%), SMEs with marketing or organisational innovations (34%), and EPO patent applications (39%).

Figure 1: Average indicator scores by regional performance group



Average scores for each performance group relative to the EU average (=100). Scores calculated excluding countries for which regions do not exist and regional data are not available (Cyprus, Estonia, Latvia, Lithuania, Luxembourg, and Malta). Scores have been corrected, since the average of the unweighted group averages is either above or below 100 for all indicators.¹⁴ The correction makes sure that this average is equal to the EU average of 100. Full details are explained in the RIS 2017 Methodology Report.

¹³ The strong performance of both Moderate and Modest Innovators on Non-R&D innovation expenditures reflects the fact that in less innovative countries it is more common for enterprises to innovate by purchasing advanced machinery and equipment and knowledge developed elsewhere, than to invest in own R&D activities, which are typically more expensive and at higher risk of failing to result in a useful product or process innovation.

¹⁴ For several indicators, average performance scores for all four groups are either below or close to 100, whereas one would expect to see more scores above 100 as the EU average is the average of all regions and performance groups. However, for several reasons the EU average seems to be too high for some indicators. The most important explanation is that where the EU average is a weighted average with larger regions/countries having a larger contribution to this average than smaller regions/countries, the average group performance scores are unweighted averages with equal contributions for all regions, irrespective if these are larger NUTS 1 or smaller NUTS 2 regions. Another explanation is that the EU also includes the performance of Cyprus, Estonia, Latvia, Lithuania, Luxembourg, and Malta, whereas these countries are not included in the regional performance groups.

Despite the variation in regional performance within countries, regional performance groups largely match the corresponding EIS country performance groups. Most of the regional Innovation Leaders are found in countries identified as Innovation Leaders in the EIS 2017. All regional Innovation Leaders are located in 11 countries. Almost all of the regional Strong Innovators are found in the EIS Innovation Leader and Strong Innovator countries. Almost all of the regional Moderate Innovators are found in Moderate Innovator countries. All regional Modest Innovators are

found in Moderate Innovator and Modest Innovator countries. Regional 'pockets of excellence' can be identified in some Moderate Innovator countries: *Praha (Prague)* in the Czech Republic, *Bratislavský kraj* in Slovakia, and *País Vasco (or Basque Country)* in Spain. At the same time, some regions in Innovation Leader and Strong Innovator countries clearly lag behind (for instance, *Niederbayern, Sachsen-Anhalt*, and *Weser-Ems* in Germany, and *Friesland* in the Netherlands.)

Table 6: Average indicator scores by regional performance group

	Innovation Leaders	Strong Innovators	Moderate Innovators	Modest Innovators
Population having completed tertiary education	132	98	83	87
Lifelong learning	163	129	78	30
International scientific co-publications	167	106	86	41
Most-cited scientific publications	131	115	90	64
R&D expenditures in the public sector	135	105	96	64
R&D expenditures in the business sector	172	121	78	30
Non-R&D innovation expenditures	96	102	112	91
SMEs with product or process innovations	143	128	88	41
SMEs with marketing or organisational innovations	151	130	84	34
SMEs innovating in-house	138	133	89	40
Innovative SMEs collaborating with others	154	141	72	33
Public-private co-publications	194	111	67	28
EPO patent applications	166	131	64	39
Trademark applications	113	96	103	88
Design applications	114	105	87	94
Employment in medium-high/high tech manufacturing and knowledge-intensive services	131	106	90	73
Exports of medium-high/high technology-intensive manufacturing	118	106	92	85
Sales of new-to-market and new-to-firm innovations in SMEs	132	112	104	52

Average scores for each performance group relative to the EU average (=100). Scores calculated excluding countries for which regions do not exist and regional data are not available (Cyprus, Estonia, Latvia, Lithuania, Luxembourg, and Malta). Scores have been corrected as the average of the unweighted group averages is either above or below 100 for all indicators. The correction makes sure that this average is equal to the EU average of 100, full details are provided in the RIS 2017 Methodology Report.

Providing more detail: defining 12 performance sub-groups

The RIS 2016 also identified four regional performance groups and used a map distinguishing between four different colours to show group membership. Although that map was perceived as being illustrative and useful, the relatively small number of performance groups has been criticised for hiding regional differences within countries. For most countries, there is limited variation in regional performance groups. Only in Spain, there are three different regional performance groups (Table 7). In 15 countries, there are two different regional performance groups, and in Austria, Croatia, Hungary, Ireland, Italy, Portugal, Romania, Serbia, and Switzerland, all regions are in the same performance group.¹⁵

The RIS 2017 introduces three subgroups within each performance group to allow for more diversity at the regional level: the top one-third regions (+), the middle one-third regions and the bottom one-third regions (-). Performance group membership for all regions is shown in Annex 2.

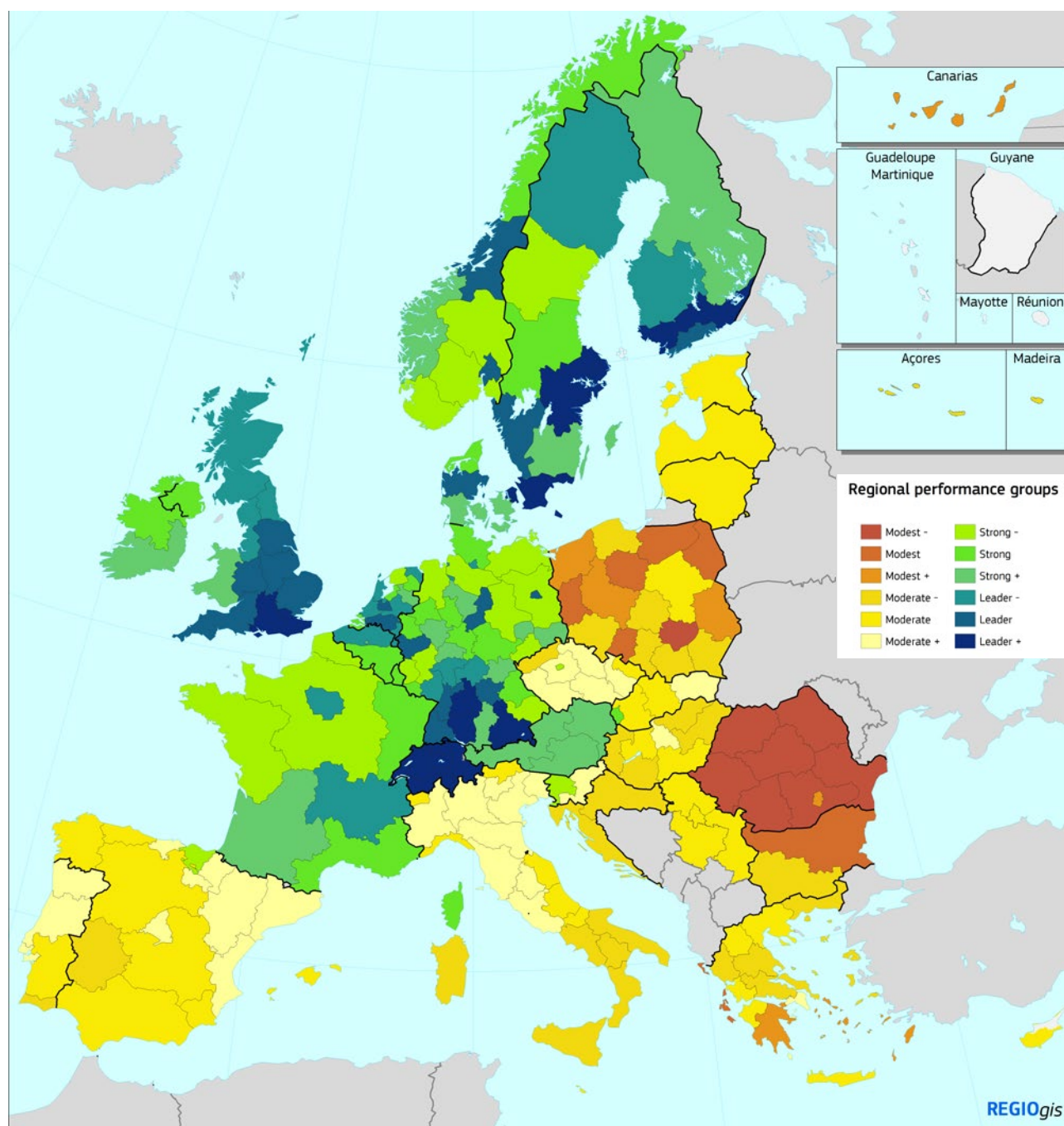
A geographical map of the regional performance subgroups is shown in Figure 2:

- Innovation Leaders are shown using three shades of blue, with the darkest blue showing the Innovation Leaders + and the lightest blue the Innovation Leaders -.
- Strong Innovators are shown using three shades of green, with the darkest green showing the Strong + Innovators and the lightest green the Strong - Innovators.
- Moderate Innovators are shown using three shades of yellow, with the lightest yellow showing the Moderate + Innovators and the darkest yellow the Moderate - Innovators.
- Modest Innovators are shown using three shades of orange, with the lightest orange showing the Modest + Innovators and the darkest orange the Modest - Innovators.

Most of the Innovation Leaders and Strong Innovators are located in the former EU15 countries in North-West Europe. Most of the Moderate Innovators and Modest Innovators are located in newer Member States and former EU15 countries in the South of Europe.

¹⁵ For Cyprus, Estonia, Latvia, Lithuania, Luxembourg and Malta, there are no separate regions.

Figure 2: Regional performance groups



For Cyprus, Estonia, Latvia, Lithuania, Luxembourg, and Malta, performance group membership is identical to that in the European Innovation Scoreboard 2017 report. For these countries, the corresponding colour for the middle one-third group in the respective performance group has been used.

At the level of subgroups, there is more diversity in performance of regional innovation systems within countries. In Germany, there are six different subgroups, with the Strong Innovators the largest subgroup. In Sweden, there are also six different subgroups, with three regions in the Leader + group and one region in each of the other subgroups. In Greece, the Netherlands, Norway, Poland, Spain, and the UK, there are five different subgroups; in the Czech Republic, Denmark, and France, there are four different subgroups. **Table 7** already reveals the fact that capital regions, which include the larger metropolitan capital areas, tend

to perform better than other regions in the same country. For instance, in the Czech Republic, *Praha* (CZ01) is a Strong - Innovator, while all other regions are Moderate Innovators; in Slovakia, *Bratislavský kraj* (SK01) is a Strong Innovator, while all other regions are Moderate Innovators; and in Romania, *Bucuresti - Ilfov* (RO32) is a Modest + Innovator, while all other regions are Modest - Innovators. In Spain, it is not the capital region that stands out, but another highly urbanised region, *País Vasco* (ES21), being the only Strong Innovator.

Table 7: Occurrence of regional performance groups by country

	Performance group EIS 2017	Regional Innovation Leaders			Regional Strong Innovators			Regional Moderate Innovators			Regional Modest Innovators		
		+		-	+		-	+		-	+		-
		17	18	18	20	20	20	28	28	29	7	7	8
Switzerland	Innovation Leader	7											
Sweden	Innovation Leader	3	1	1	1	1	1						
Denmark	Innovation Leader	1	1		2	1							
Finland	Innovation Leader	1	1	1	1								
Netherlands	Innovation Leader		2	5	1	3	1						
United Kingdom	Innovation Leader	2	5	3	1	1							
Germany	Innovation Leader	2	7	5	7	8	9						
Austria	Strong Innovator				3								
Luxembourg	Strong Innovator												
Belgium	Strong Innovator			1	1	1							
Norway	Strong Innovator	1	1		1	1	3						
Ireland	Strong Innovator				1	1							
France	Strong Innovator			2	1	2	3						
Slovenia	Strong Innovator						1	1					
Czech Republic	Moderate Innovator						1	5	1	1			
Portugal	Moderate Innovator							3	1	3			
Estonia	Moderate Innovator												
Lithuania	Moderate Innovator												
Spain	Moderate Innovator						1	8	6	1	1		
Malta	Moderate Innovator												
Italy	Moderate Innovator							9	6	6			
Cyprus	Moderate Innovator												
Slovakia	Moderate Innovator					1			3				
Greece	Moderate Innovator							1	4	5	2	1	
Hungary	Moderate Innovator							1	2	4			
Serbia	Moderate Innovator								4				
Latvia	Moderate Innovator												
Poland	Moderate Innovator								1	6	3	5	1
Croatia	Moderate Innovator									2			
Bulgaria	Modest Innovator									1		1	
Romania	Modest Innovator										1		7

Countries ordered by their performance score in the European Innovation Scoreboard 2017.

3.2 Ranking of regions

The most innovative region in the EU is *Stockholm* (SE11) in Sweden, followed by *Hovedstaden* (DK01) in Denmark and *South East* (UKJ) in the United Kingdom (**Table 8**). The overall most innovative region in 2017 is *Zürich* (CH04), followed by *Nordwestschweiz* (CH03) both located in Switzerland. *Stockholm* (SE11) ranks third overall, similar as for 2011. *Zürich* (CH04) was also the overall leader in 2011, 2013, and 2015. *Hovedstaden* (DK01) was ranked second overall in 2015, 2013, and 2011.

Seven out of the top-25 regions in 2017 are located in Switzerland, five in Germany, four in Sweden and the UK, two in Denmark, and one in Finland, the Netherlands, and Norway. The top-25 regions for all years are from one of the aforementioned countries, no other country is

represented in these years. There are no major fluctuations of the top-25 regions over time: 18 regions were for all years in the top-25.

There are two newcomers, *Trøndelag* (NO06), in Norway, which ranks 16th and *East Midlands* (UKF), in the UK, which ranks 24th. *London* (UKI), also located in the UK, has made its second appearance, and improved in rank from 18th (2015) to 15th (2017). *Utrecht* (NL31), in the Netherlands, has also made its second appearance in the top-25 and improved in rank from 24th (2015) to 23rd (2017). All of the Top-25 regions score at least 33% above the EU average, the top-15 regions perform above 40% of the EU average, and the top-6 above 50%. *Zürich* (CH04) is by far the most innovative region performing 78.3% above the EU average. *Nordwestschweiz* (CH03) performs 66.4% above the EU-average.

Table 8: Top-25 Regional Innovation Leaders

	2011 (RII 2011)	2013 (RII 2013)	2015 (RII 2015)	2017 (RII 2017)	RII 2017
1	Zürich (CH04)	Zürich (CH04)	Zürich (CH04)	Zürich (CH04)	178.3
2	Hovedstaden (DK01)	Hovedstaden (DK01)	Hovedstaden (DK01)	Nordwestschweiz (CH03)	166.4
3	Nordwestschweiz (CH03)	Stockholm (SE11)	Nordwestschweiz (CH03)	Stockholm (SE11)	165.1
4	Stockholm (SE11)	Nordwestschweiz (CH03)	Stockholm (SE11)	Hovedstaden (DK01)	155.0
5	Sydsverige (SE22)	Oberbayern (DE21)	Zentralschweiz (CH06)	Zentralschweiz (CH06)	154.9
6	Zentralschweiz (CH06)	Sydsverige (SE22)	Karlsruhe (DE12)	Ticino (CH07)	152.5
7	Östra Mellansverige (SE12)	Zentralschweiz (CH06)	Sydsverige (SE22)	Ostschweiz (CH05)	149.6
8	Karlsruhe (DE12)	Karlsruhe (DE12)	Région lémanique (CH01)	South East (UKJ)	148.2
9	Etelä-Suomi (FI1C)	Östra Mellansverige (SE12)	Ticino (CH07)	Région lémanique (CH01)	147.9
10	Oberbayern (DE21)	Tübingen (DE14)	Oberbayern (DE21)	Östra Mellansverige (SE12)	146.3
11	Tübingen (DE14)	Etelä-Suomi (FI1C)	Ostschweiz (CH05)	Espace Mittelland (CH02)	143.2
12	Région lémanique (CH01)	Stuttgart (DE11)	Västsverige (SE23)	Oberbayern (DE21)	143.0
13	Stuttgart (DE11)	Région lémanique (CH01)	Espace Mittelland (CH02)	Sydsverige (SE22)	141.9
14	Ostschweiz (CH05)	Västsverige (SE23)	Tübingen (DE14)	Tübingen (DE14)	141.8
15	Ticino (CH07)	Midtjylland (DK04)	Stuttgart (DE11)	London (UKI)	141.1
16	Västsverige (SE23)	Ticino (CH07)	Etelä-Suomi (FI1C)	Trøndelag (NO06)	139.6
17	Espace Mittelland (CH02)	Ostschweiz (CH05)	Berlin (DE3)	Etelä-Suomi (FI1C)	139.5
18	Freiburg (DE13)	Braunschweig (DE91)	London (UKI)	Stuttgart (DE11)	139.1
19	East of England (UKH)	Espace Mittelland (CH02)	South East (UKJ)	East of England (UKH)	139.1
20	South East (UKJ)	Berlin (DE30)	Östra Mellansverige (SE12)	Berlin (DE030)	139.0
21	Braunschweig (DE91)	Freiburg (DE13)	Midtjylland (DK04)	Karlsruhe (DE12)	138.8
22	Midtjylland (DK04)	Rheinhausen-Pfalz (DEB3)	Rheinhausen-Pfalz (DEB3)	Västsverige (SE23)	138.3
23	Mittelfranken (DE25)	South East (UKJ)	Braunschweig (DE91)	Utrecht (NL31)	136.6
24	Berlin (DE3)	Mittelfranken (DE25)	Utrecht (NL31)	East Midlands (UKF)	134.2
25	Rheinhausen-Pfalz (DEB3)	Darmstadt (DE71)	Övre Norrland (SE33)	Midtjylland (DK04)	133.3

¹⁶ Cataluña (ES51) scores 88.545% and Jihovýchod (CZ06) 88.478% of the EU average.

The top-ranking region of the Strong Innovators group is *Wales* (UKL) in the UK (**Table 9**). *Südösterreich* (AT2), in Austria, ranks second and *Ostösterreich* (AT1) third. All of the top-10 regions in the Strong Innovators group perform at least 15% above the EU average.

Cataluña (ES51), in Spain, is the top-ranking region of the Moderate Innovators group, with a performance of 88.5% of the EU average.

Jihovýchod (CZ06), in the Czech Republic, ranks second with a performance of 88.5%¹⁶ and *Lisboa* (PT17), in Portugal, ranks third with a performance of 88.2%.

Of the Modest Innovators group, *Wielkopolskie* (PL41), in Poland, ranks first, *Canarias* (ES70), in Spain, second, and *Lubelskie* (PL31), in Poland, third.

Table 9: Top-10 Regions by regional performance groups

Top-10 Strong Innovators			Top-10 Moderate Innovators			Top-10 Modest Innovators		
Rank	Region	RII 2017	Rank	Region	RII 2017	Rank	Region	RII 2017
1	Wales (UKL)	119.4	1	Cataluña (ES51)	88.5	1	Wielkopolskie (PL41)	49.3
2	Südösterreich (AT2)	119.4	2	Jihovýchod (CZ06)	88.5	2	Canarias (ES70)	47.9
3	Ostösterreich (AT1)	119.3	3	Lisboa (PT17)	88.2	3	Lubelskie (PL31)	47.4
4	Dresden (DED2)	118.7	4	Friuli-Venezia Giulia (ITH4)	87.8	4	Bucuresti - Ilfov (RO32)	47.2
5	Overijssel (NL21)	118.0	5	Vzhodna Slovenija (SI01)	86.6	5	Notio Aigaio (EL42)	47.2
6	Syddanmark (DK03)	117.3	6	Comunidad de Madrid (ES30)	85.9	6	Zachodniopomorskie (PL42)	47.0
7	Leipzig (DED3)	117.0	7	Comunidad Foral de Navarra (ES22)	85.5	7	Peloponnisos (EL65)	46.8
8	Southern and Eastern (IE02)	116.0	8	Centro (PT16)	85.0	8	Kujawsko-Pomorskie (PL61)	46.3
9	Gießen (DE72)	115.6	9	Severovýchod (CZ05)	84.7	9	Podlaskie (PL34)	45.5
10	Westösterreich (AT3)	115.5	10	Střední Morava (CZ07)	80.3	10	Opolskie (PL52)	43.7

3.3 Differences in regional performance within countries

This section summarizes for each country the performance of the regions within that country. For each country, a map is included showing the location of the regions in that country.



NUTS	Region	RII 2017	Rank	Group	Change
BE1	Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest	114.8	66	Strong +	1.2
BE2	Vlaams Gewest	123.3	46	Leader -	1.1
BE3	Région Wallonne	106.0	86	Strong	2.7

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Belgium as a country is a Strong Innovator. Belgium includes three NUTS 1 regions.

Vlaams Gewest (BE2), or the Flemish Region occupying the northern part of Belgium, is an Innovation Leader -. Région de Bruxelles-Capitale (BE1), or Brussels-Capital Region, is a Strong + Innovator. Région Wallonne (BE3), or Walloon Region occupying the southern part of Belgium, is a Strong Innovator. For all three regions, performance has increased over time.



NUTS	Region	RII 2017	Rank	Group	Change
BG3	Severna i iztochna Bulgaria	39.3	211	Modest	-0.7
BG4	Yugozapadna i yuzhna tsentralna Bulgaria	51.3	194	Moderate -	2.3

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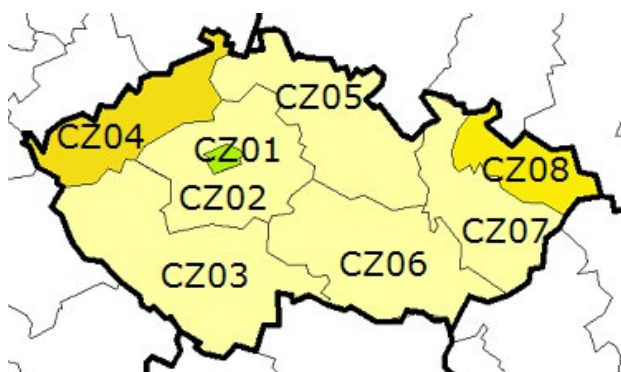
Bulgaria as a country is a Modest Innovator. Bulgaria includes two NUTS 1 regions.

Severna i iztochna Bulgaria (BG3), or Northern and Eastern Bulgaria, is a Modest Innovator, for which performance has decreased.

Yugozapadna i yuzhna tsentralna Bulgaria (BG4), or South-Western and South-Central Bulgaria, includes the capital city Sofia and is a Moderate - Innovator, for which performance has improved.



CZECH REPUBLIC



NUTS	Region	RII 2017	Rank	Group	Change
CZ01	Praha	99.0	104	Strong -	-6.7
CZ02	Střední Čechy	72.9	139	Moderate +	-13.4
CZ03	Jihozápad	75.0	135	Moderate +	-4.2
CZ04	Severozápad	57.5	177	Moderate -	-9.9
CZ05	Severovýchod	84.7	122	Moderate +	-0.6
CZ06	Jihovýchod	88.5	115	Moderate +	2.4
CZ07	Střední Morava	80.3	123	Moderate +	4.2
CZ08	Moravskoslezsko	70.4	143	Moderate	1.3

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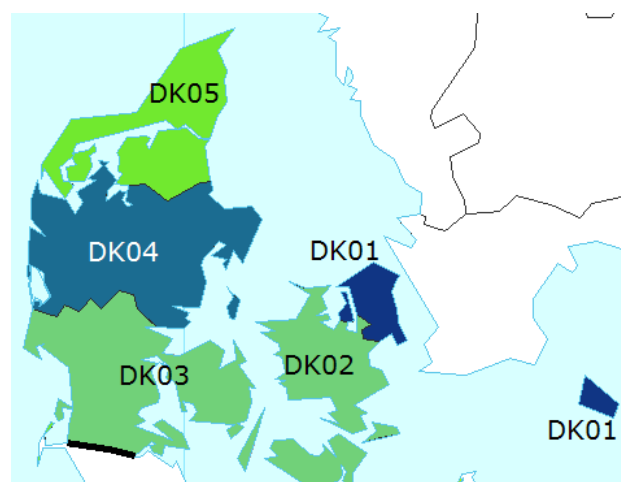
The Czech Republic as a country is a Moderate Innovator. The Czech Republic includes eight NUTS 2 regions.

Praha (CZ01) the capital region, is a Strong - Innovator, performing about 75% higher than the lowest performing region, Severozápad (CZ04). All other regions are Moderate Innovators; five regions – Jihovýchod (CZ06), Severovýchod (CZ05), Střední Morava (CZ07), Jihozápad (CZ03), and Střední Čechy (CZ02) – are Moderate + Innovators. Moravskoslezsko (CZ08), the easternmost region, is a Moderate Innovator, and Severozápad (CZ04), the westernmost region, is a Moderate - Innovator.

For five regions, performance has decreased, in particular for Střední Čechy (CZ02) and Severozápad (CZ04). Performance has improved for three regions.



DENMARK



NUTS	Region	RII 2017	Rank	Group	Change
DK01	Hovedstaden	154.9	5	Leader +	-2.2
DK02	Sjælland	113.7	68	Strong +	-4.1
DK03	Syddanmark	117.3	59	Strong +	-0.1
DK04	Midtjylland	133.3	25	Leader	1.5
DK05	Nordjylland	108.8	78	Strong	-5.9

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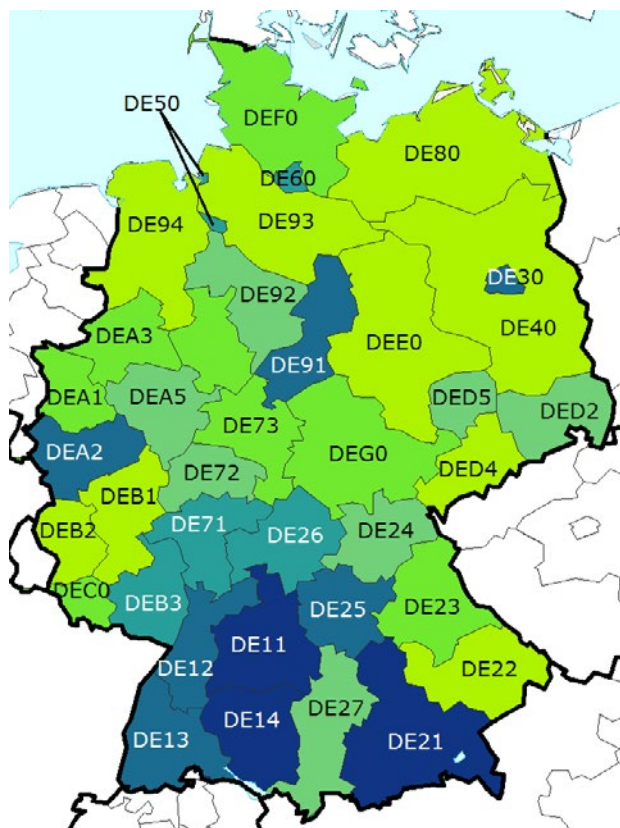
Denmark as a country is an Innovation Leader. Denmark includes five NUTS 2 regions.

Hovedstaden (DK01), the capital region, is an Innovation Leader +, and is the fifth most innovative region of all European regions. Midtjylland (DK04) is an Innovation Leader. Syddanmark (DK03) and Sjælland (DK02) are Strong + Innovators, Nordjylland (DK05) is a Strong Innovator.

Performance has declined for three regions, in particular for Nordjylland (DK05), and did not change for Syddanmark (DK03). Performance has only increased for Midtjylland (DK04).



GERMANY



NUTS	Region	RII 2017	Rank	Group	Change
DE11	Stuttgart	139.6	16	Leader +	-0.4
DE12	Karlsruhe	138.8	21	Leader	-3.9
DE13	Freiburg	130.1	30	Leader	-5.2
DE14	Tübingen	141.9	13	Leader +	0.7
DE21	Oberbayern	143.2	11	Leader +	1.5
DE22	Niederbayern	91.0	112	Strong -	-16.2
DE23	Oberpfalz	106.8	83	Strong	-10.3
DE24	Oberfranken	111.2	72	Strong +	-9.4
DE25	Mittelfranken	129.1	32	Leader	-2.3
DE26	Unterfranken	121.2	52	Leader -	-0.2
DE27	Schwaben	111.7	69	Strong +	-4.2
DE30	Berlin	139.1	18	Leader	8.4
DE40	Brandenburg	99.8	100	Strong -	-4.0
DE50	Bremen	120.2	53	Leader -	6.9
DE60	Hamburg	123.7	45	Leader -	4.6
DE71	Darmstadt	123.9	44	Leader -	-1.1
DE72	Gießen	116.0	61	Strong +	-6.1
DE73	Kassel	103.0	90	Strong	1.1
DE80	Mecklenburg-Vorpommern	99.5	101	Strong -	1.5
DE91	Braunschweig	129.4	31	Leader	-2.6
DE92	Hannover	114.3	67	Strong +	-2.2
DE93	Lüneburg	99.3	102	Strong -	0.5
DE94	Weser-Ems	93.2	109	Strong -	-3.8
DEA1	Düsseldorf	107.6	81	Strong	-7.3
DEA2	Köln	128.8	33	Leader	4.6
DEA3	Münster	108.2	79	Strong	-1.2
DEA4	Detmold	109.7	74	Strong	-4.4
DEA5	Arnsberg	111.7	70	Strong +	-3.5
DEB1	Koblenz	102.2	94	Strong -	2.0
DEB2	Trier	99.1	103	Strong -	-1.2
DEB3	Rheinhausen-Pfalz	122.8	48	Leader -	-6.0
DECO	Saarland	102.5	93	Strong	-6.7
DED1	Chemnitz	100.4	98	Strong -	-2.7
DED2	Dresden	118.7	57	Strong +	-6.0
DED3	Leipzig	117.0	60	Strong +	4.4
DEEO	Sachsen-Anhalt	91.2	111	Strong -	-8.6
DEFO	Schleswig-Holstein	109.5	76	Strong	0.0
DEGO	Thüringen	107.4	82	Strong	-7.3

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Germany as a country is an Innovation Leader. Germany includes nine NUTS 1 regions and 29 NUTS 2 regions.

All regions are either Innovation Leaders or Strong Innovators. The most innovative regions are *Oberbayern* (DE21), *Tübingen* (DE14), and *Stuttgart* (DE11), which are Innovation Leaders +. These regions and also *Berlin* (DE30) and *Karlsruhe* (DE12) are within the top-25 of most innovative European regions.

The map shows that the South of Germany is, on average, more innovative than the West, North or East. The map also shows that the small highly urbanised city regions of *Berlin* (DE30), *Bremen* (DE50), and *Hamburg* (DE60) are more innovative than their surrounding regions.

Performance has increased for 12 regions, most notably for *Berlin* (DE30) (+8.4%) and *Bremen* (DE50) (+6.9%). Performance has decreased for 26 regions, most notably for *Niederbayern* (DE22) (-6.2%), *Oberpfalz* (DE23) (-10.3%), and *Oberfranken* (DE24) (-9.4%), which are all located in the Southeast of Germany.



IRELAND



NUTS	Region	RII2017	Rank	Group	Change
IE01	Border, Midland and Western	104.2	87	Strong	-3.6
IE02	Southern and Eastern	115.6	62	Strong +	2.0

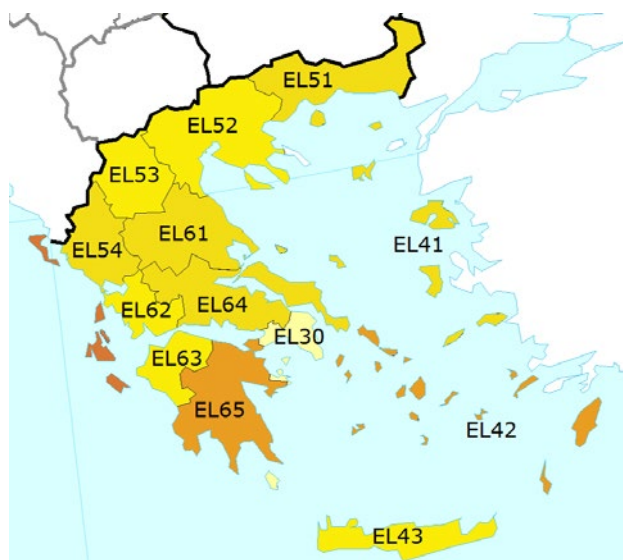
RII 2017 shows performance in 2017 relative to that of the EU in 2011. Rank shows the rank performance in 2017 across all regions. Group shows the respective performance group. Change shows the performance change over time calculated as the difference between the performance in 2017 (RII 2017) relative to that of the EU in 2011 and performance in 2011 (RII 2011) relative to that of the EU in 2011.

Ireland as a country is a Strong Innovator. Ireland includes two NUTS 2 regions.

Southern and Eastern (IE02) is a Strong + Innovator, for which performance has increased. Border, Midland and Western (IE01) is a Strong Innovator, for which performance has decreased.



GREECE



NUTS	Region	RII 2017	Rank	Group	Change
EL51	Anatoliki Makedonia, Thraki	52.0	191	Moderate -	6.2
EL52	Kentriki Makedonia	65.6	156	Moderate	2.4
EL53	Dytiki Makedonia	61.3	163	Moderate	15.7
EL54	Ipeiros	52.9	187	Moderate -	0.7
EL61	Thessalia	57.7	175	Moderate -	1.0
EL62	Ionia Nisia	41.8	209	Modest	1.3
EL63	Dytiki Ellada	63.1	160	Moderate	2.6
EL64	Stereia Ellada	52.4	189	Moderate -	-0.9
EL65	Peloponnisos	46.8	205	Modest +	-4.1
EL30	Attiki	74.9	136	Moderate +	5.8
EL41	Voreio Aigaio	53.2	185	Moderate -	12.0
EL42	Notio Aigaio	47.2	202	Modest +	-2.1
EL43	Kriti	69.5	146	Moderate	4.5

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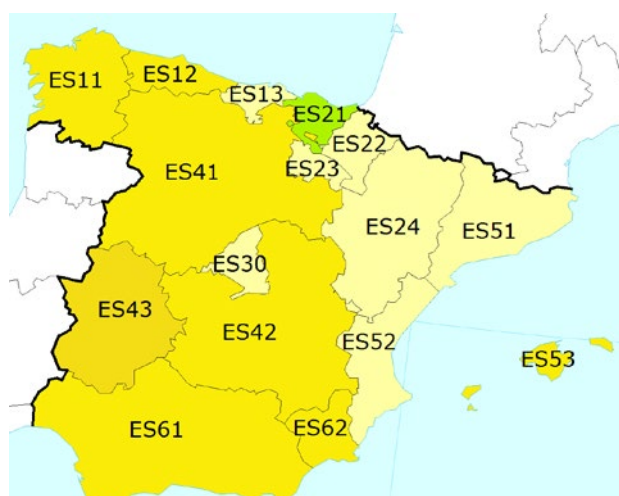
Greece as a country is a Moderate Innovator. Greece includes one NUTS 1 and 12 NUTS 2 regions.

Most regions are Moderate Innovators, with Attiki (EL30), the capital region, being the most innovative region and the only Moderate + Innovator. Four regions are Moderate Innovators, five regions are Moderate - Innovators, two regions are Modest + Innovators, and Ionia Nisia (EL62) is the only Modest Innovator.

Performance has increased for ten regions, most strongly for Dytiki Makedonia (EL53) and Voreio Aigaio (EL41). Performance has declined for three regions, with about 1% for Stereia Ellada (EL64), about 2% for Ipeiros (EL54) and about 4% for Peloponnisos (EL65).



SPAIN



NUTS	Region	RII 2017	Rank	Group	Change
ES11	Galicia	71.6	142	Moderate	0.0
ES12	Principado de Asturias	66.7	150	Moderate	-4.8
ES13	Cantabria	71.9	140	Moderate +	1.2
ES21	País Vasco	91.4	110	Strong -	-1.4
ES22	Comunidad Foral de Navarra	85.5	120	Moderate +	-10.9
ES23	La Rioja	75.3	134	Moderate +	1.1
ES24	Aragón	78.0	130	Moderate +	-2.9
ES30	Comunidad de Madrid	85.9	119	Moderate +	-0.4
ES41	Castilla y León	66.6	151	Moderate	-6.6
ES42	Castilla-La Mancha	59.8	167	Moderate	-2.1
ES43	Extremadura	55.3	180	Moderate -	-0.3
ES51	Cataluña	88.5	114	Moderate +	-1.0
ES52	Comunidad Valenciana	76.5	132	Moderate +	1.7
ES53	Illes Balears	59.0	169	Moderate	1.5
ES61	Andalucía	65.1	157	Moderate	1.1
ES62	Región de Murcia	66.2	153	Moderate	2.9
ES63	Ciudad Autónoma de Ceuta ±	--	--	--	--
ES64	Ciudad Autónoma de Melilla ±	--	--	--	--
ES70	Canarias	47.9	200	Modest +	-7.1

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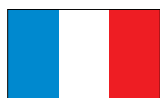
± Not included due to insufficient data.

Spain as a country is a Moderate Innovator. Spain includes two NUTS 1 and 17 NUTS 2 regions.

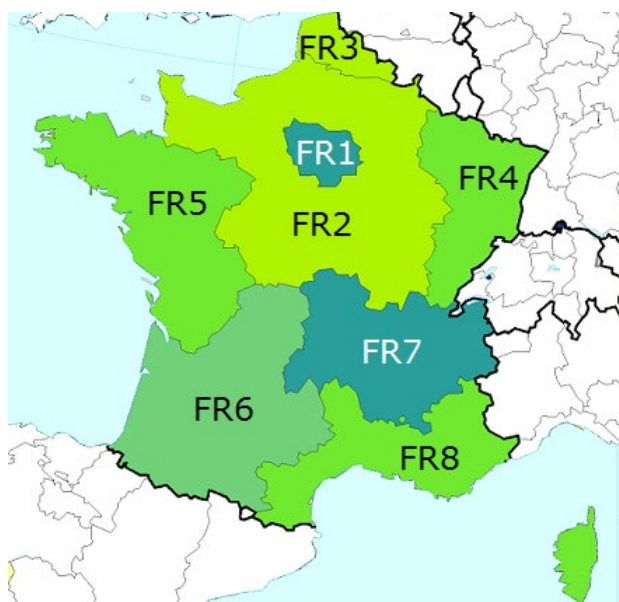
Regional performance differences are high in Spain with the best performing region and only Strong Innovator, *País Vasco* (ES21), performing almost twice as well as the lowest performing region, *Canarias* (ES70). Most Spanish regions are Moderate Innovators, except of *País Vasco*, a Strong - Innovator, and *Canarias*, a Modest + Innovator.

There are seven Moderate + Innovators, seven Moderate Innovators, and one Moderate - Innovator (*Extremadura* (ES43)).

Performance has increased for six regions, most strongly for *Región de Murcia* (ES62). Performance has decreased for ten regions; for *Comunidad Foral de Navarra* (ES22) the decrease was almost -11%.



FRANCE



NUTS	Region	RII 2017	Rank	Group	Change
FR1	Île de France	127.4	37	Leader -	1.2
FR2	Bassin Parisien	94.8	108	Strong -	1.4
FR3	Nord - Pas-de-Calais	98.8	105	Strong -	7.0
FR4	Est	108.0	80	Strong	6.7
FR5	Ouest	101.8	96	Strong -	6.3
FR6	Sud-Ouest	111.3	71	Strong +	4.3
FR7	Centre-Est	122.7	49	Leader -	8.4
FR8	Méditerranée	103.0	91	Strong	1.1
FR9	French overseas departments ±	--	--	--	--

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± Not included due to insufficient data.

France as a country is a Strong Innovator. France includes nine NUTS 1 regions.

Île de France (FR1), the capital region, and *Centre-Est* (FR7) are both Innovation Leader -. All other regions are Strong Innovators. *Sud-Ouest* (FR6) is a Strong + Innovator. *Est* (FR4) and *Méditerranée* (FR8) are Strong Innovators. *Bassin Parisien* (FR2), *Nord - Pas-de-Calais* (FR3), and *Ouest* (FR5) are Strong - Innovators.

Performance has improved for all regions, in particular for *Centre-Est* (FR7) (+8.4%).



CROATIA



NUTS	Region	RII2017	Rank	Group	Change
HR03	Jadranska Hrvatska	51.5	193	Moderate -	-4.0
HR04	Kontinentalna Hrvatska	53.0	186	Moderate -	0.1

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Croatia as a country is a Moderate Innovator. Croatia includes two NUTS 2 regions.

Kontinentalna Hrvatska (HR03) and Jadranska Hrvatska (HR04) are both Moderate - Innovators. For Kontinentalna Hrvatska (HR03), performance has decreased by -4%. For Jadranska Hrvatska (HR04), performance not changed.



ITALY



NUTS	Region	RII 2017	Rank	Group	Change
ITC1	Piemonte	79.8	125	Moderate +	0.6
ITC2	Valle d'Aosta/ Vallée d'Aoste	59.0	168	Moderate	-1.3
ITC3	Liguria	69.6	145	Moderate	4.1
ITC4	Lombardia	79.6	127	Moderate +	-0.8
ITH1	Provincia Autonoma Bolzano/ Bozen	69.4	147	Moderate	2.6
ITH2	Provincia Autonoma Trento	78.4	129	Moderate +	1.3
ITH3	Veneto	79.4	128	Moderate +	0.2
ITH4	Friuli-Venezia Giulia	87.8	117	Moderate +	3.6
ITH5	Emilia-Romagna	79.9	124	Moderate +	-1.6
ITI1	Toscana	75.5	133	Moderate +	6.6
ITI2	Umbria	74.3	137	Moderate +	5.7
ITI3	Marche	69.4	148	Moderate	0.8
ITI4	Lazio	73.6	138	Moderate +	-2.9
ITF1	Abruzzo	64.5	158	Moderate	3.2
ITF2	Molise	61.0	164	Moderate	4.9
ITF3	Campania	57.8	173	Moderate -	-1.5
ITF4	Puglia	58.5	170	Moderate -	-0.6
ITF5	Basilicata	57.9	172	Moderate -	0.0
ITF6	Calabria	57.8	174	Moderate -	7.7
ITG1	Sicilia	51.3	194	Moderate -	-1.9
ITG2	Sardegna	52.4	190	Moderate -	-1.1

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Italy as a country is a Moderate Innovator. Italy includes 21 NUTS 2 regions.

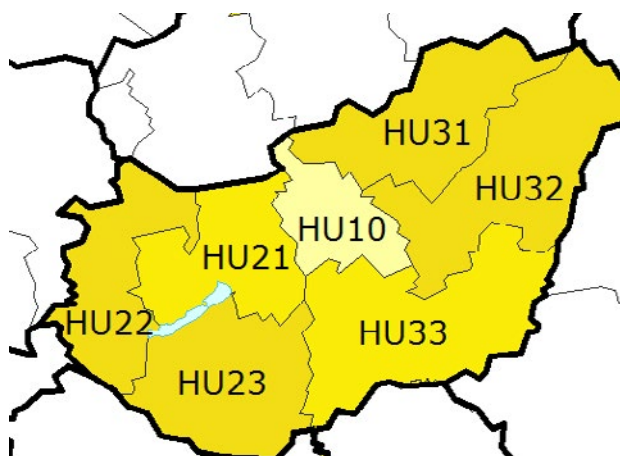
Regional performance differences are high in Italy with the best performing region, Friuli-Venezia Giulia (ITH4), performing 70% higher than the lowest performing region, Sicilia (ITG1). Innovation performance is higher in more northern regions as compared to more southern regions.

All Italian regions are Moderate Innovators, nine are Moderate +, six are Moderate and six are Moderate - Innovators.

For 12 regions, performance has improved, in particular for Calabria (ITF6) (+7.7%) and Toscana (ITE1) (+6.6%). For eight regions, performance has declined.



HUNGARY



NUTS	Region	RII 2017	Rank	Group	Change
HU10	Közép-Magyarország	77.6	131	Moderate +	-3.7
HU21	Közép-Dunántúl	61.3	162	Moderate	-2.9
HU22	Nyugat-Dunántúl	58.2	171	Moderate -	-9.6
HU23	Dél-Dunántúl	53.6	183	Moderate -	0.1
HU31	Észak-Magyarország	51.2	196	Moderate -	-1.0
HU32	Észak-Alföld	57.6	176	Moderate -	1.2
HU33	Dél-Alföld	60.7	165	Moderate	2.1

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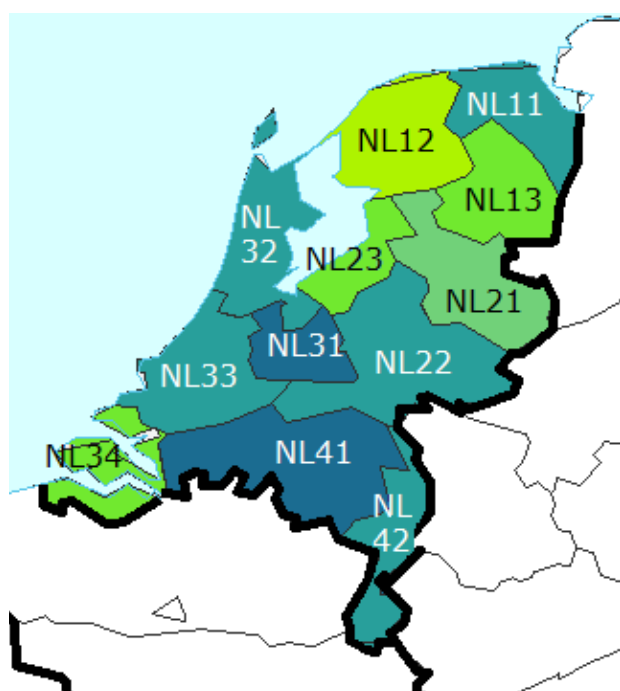
Hungary as a country is a Moderate Innovator. Hungary includes one NUTS 1 and six NUTS 2 regions.

All regions are also Moderate Innovators. *Közép-Magyarország* (HU10), the capital region, is the most innovative region and the only Moderate + Innovator. Two regions are Moderate Innovators and four regions are Moderate - Innovators.

Performance has increased for two regions and most strongly for *Dél-Alföld* (HU33). Performance has decreased for four regions; for *Nyugat-Dunántúl* (HU22) with almost -10%.



NETHERLANDS



NUTS	Region	RII 2017	Rank	Group	Change
NL11	Groningen	125.0	42	Leader -	12.6
NL12	Friesland	95.0	107	Strong -	6.8
NL13	Drenthe	106.2	84	Strong	19.7
NL21	Overijssel	118.0	58	Strong +	10.9
NL22	Gelderland	126.1	40	Leader -	13.0
NL23	Flevoland	109.6	75	Strong	6.9
NL31	Utrecht	136.6	23	Leader	11.9
NL32	Noord-Holland	127.5	36	Leader -	11.1
NL33	Zuid-Holland	127.3	38	Leader -	13.7
NL34	Zeeland	103.6	89	Strong	10.4
NL41	Noord-Brabant	130.3	28	Leader	7.0
NL42	Limburg	124.0	43	Leader -	10.3

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The Netherlands as a country is an Innovation Leader. The Netherlands includes 12 NUTS 2 regions.

Utrecht (NL31) and *Noord-Brabant* (NL42) are Innovation Leaders, and five more regions are Innovation Leaders -. Five more peripheral regions are Strong Innovators, with *Zeeland* (NL34) being the weakest innovating region. *Utrecht* (NL31) is also among the top-25 most innovative regions in Europe.

Performance has increased for all regions, in particular for *Drenthe* (NL13) (+19.7%), but also *Groningen* (NL11), *Overijssel* (NL21), *Gelderland* (NL22), *Utrecht* (NL31), *Noord-Holland* (NL32), *Zuid-Holland* (NL33), *Zeeland* (NL34), and *Limburg* (NL42) have experienced performance increases of more than 10%.

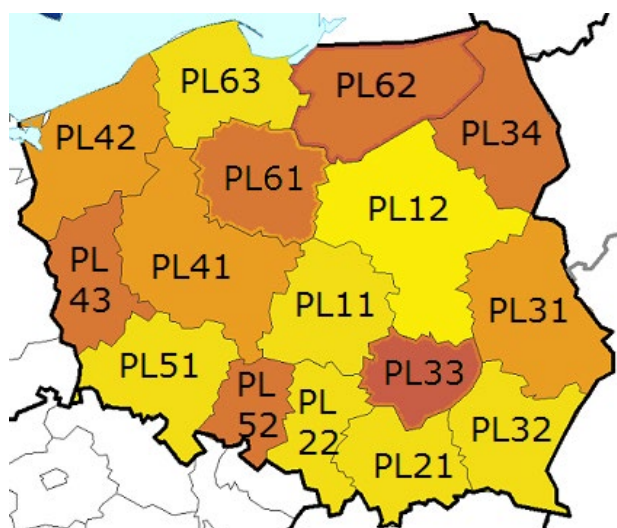
**AUSTRIA**

NUTS	Region	RII 2017	Rank	Group	Change
AT1	Ostösterreich	119.3	56	Strong +	8.5
AT2	Südösterreich	119.4	55	Strong +	12.3
AT3	Westösterreich	115.5	63	Strong +	9.2

RII 2017 shows performance in 2017 relative to that of the EU in 2011. Rank shows the rank performance in 2017 across all regions. Group shows the respective performance group. Change shows the performance change over time calculated as the difference between the performance in 2017 (RII 2017) relative to that of the EU in 2011 and performance in 2011 (RII 2011) relative to that of the EU in 2011.

Austria as a country is a Strong Innovator. Austria includes three NUTS 1 regions

All regions are Strong + Innovators. Performance has increased for all regions, most strongly for Südösterreich (AT2) (12.3%).

**POLAND**

NUTS	Region	RII 2017	Rank	Group	Change
PL11	Łódzkie	50.4	197	Moderate -	4.7
PL12	Mazowieckie	63.6	159	Moderate	-0.1
PL21	Małopolskie	57.2	178	Moderate -	4.6
PL22	Śląskie	50.3	198	Moderate -	2.1
PL31	Lubelskie	47.4	201	Modest +	7.6
PL32	Podkarpackie	51.8	192	Moderate -	2.9
PL33	Świętokrzyskie	36.8	213	Modest -	0.6
PL34	Podlaskie	45.5	207	Modest	5.1
PL41	Wielkopolskie	49.3	199	Modest +	2.5
PL42	Zachodniopomorskie	47.0	204	Modest +	5.6
PL43	Lubuskie	41.1	210	Modest	3.1
PL51	Dolnośląskie	56.9	179	Moderate -	3.7
PL52	Opolskie	43.7	208	Modest	-0.6
PL61	Kujawsko-Pomorskie	46.3	206	Modest	0.0
PL62	Warmińsko-Mazurskie	38.9	212	Modest	-3.3
PL63	Pomorskie	55.0	181	Moderate -	0.4

RII 2017 shows performance in 2017 relative to that of the EU in 2011. Rank shows the rank performance in 2017 across all regions. Group shows the respective performance group. Change shows the performance change over time calculated as the difference between the performance in 2017 (RII 2017) relative to that of the EU in 2011 and performance in 2011 (RII 2011) relative to that of the EU in 2011.

Poland as a country is a Moderate Innovator. Poland includes 16 NUTS 2 regions.

Mazowieckie (PL12), the capital region, is the most innovative region and the only Moderate Innovator. Six regions are Moderate -, three regions are Modest +, and five regions are Modest Innovators. Świętokrzyskie (PL33) is the only Modest - Innovator.

Performance has increased for 12 regions, most strongly for Zachodniopomorskie (PL42). Performance has decreased for two regions, most strongly for Warmińsko-Mazurskie (PL62).



PORTUGAL



NUTS	Region	RII 2017	Rank	Group	Change
PT11	Norte	79.6	126	Moderate +	2.3
PT15	Algarve	53.5	184	Moderate -	-15.2
PT16	Centro	85.0	121	Moderate +	-1.6
PT17	Lisboa	88.2	116	Moderate +	-6.7
PT18	Alentejo	68.4	149	Moderate	1.6
PT20	Região Autónoma dos Açores	52.9	188	Moderate -	-2.8
PT30	Região Autónoma da Madeira	55.0	182	Moderate -	-5.4

RII 2017 shows performance in 2017 relative to that of the EU in 2011. Rank shows the rank performance in 2017 across all regions. Group shows the respective performance group. Change shows the performance change over time calculated as the difference between the performance in 2017 (RII 2017) relative to that of the EU in 2011 and performance in 2011 (RII 2011) relative to that of the EU in 2011.

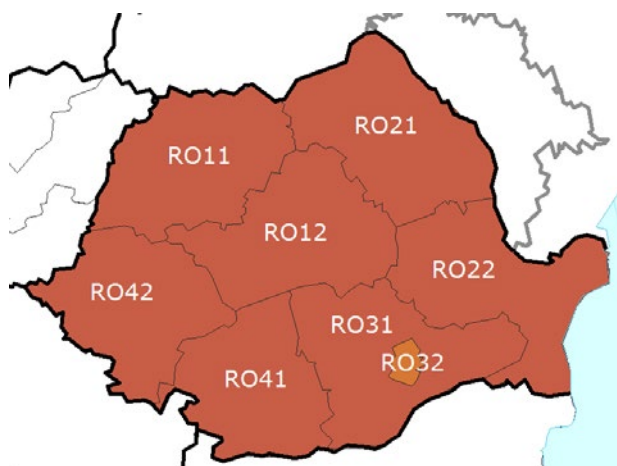
Portugal as a country is a Moderate Innovator. Portugal includes two NUTS 1 and five NUTS 2 regions.

All regions are also Moderate Innovators. *Lisboa* (PT17), the capital region, *Centro* (PT16) and *Norte* (PT11) are Moderate + Innovators. *Alentejo* (PT18) is a Moderate Innovator and *Região Autónoma da Madeira* (PT30), *Algarve* (PT15) and *Região Autónoma dos Açores* (PT20) are Moderate - Innovators.

Only for *Norte* (PT11) and *Alentejo* (PT18), performance has increased. For five regions, performance has decreased, most strongly for *Algarve* (PT15).



ROMANIA



NUTS	Region	RII 2017	Rank	Group	Change
RO11	Nord-Vest	28.4	216	Modest -	-15.1
RO12	Centru	30.7	215	Modest -	-7.6
RO21	Nord-Est	23.0	220	Modest -	-20.7
RO22	Sud-Est	26.4	218	Modest -	-18.0
RO31	Sud - Muntenia	26.9	217	Modest -	-11.0
RO32	Bucuresti - Ilfov	47.2	203	Modest +	-13.7
RO41	Sud-Vest Oltenia	23.3	219	Modest -	-10.3
RO42	Vest	35.0	214	Modest -	-10.6

RII 2017 shows performance in 2017 relative to that of the EU in 2011. Rank shows the rank performance in 2017 across all regions. Group shows the respective performance group. Change shows the performance change over time calculated as the difference between the performance in 2017 (RII 2017) relative to that of the EU in 2011 and performance in 2011 (RII 2011) relative to that of the EU in 2011.

Romania as a country is a Modest Innovator. Romania includes eight NUTS 2 regions.

Regional performance differences are high in Romania with the best performing region, *Bucuresti - Ilfov* (RO32), performing more than twice as well as the lowest performing region, *Sud-Vest Oltenia* (RO41). All Romanian regions are Modest - Innovators, only *Bucuresti - Ilfov* (RO32) is a Modest + Innovator.

Performance has declined strongly for all regions, in particular in the two easternmost regions *Nord-Est* (RO21) and *Sud-Est* (RO22).



SLOVENIA



NUTS	Region	RII 2017	Rank	Group	Change
SI03	Vzhodna Slovenija	86.6	118	Moderate +	6.3
SI04	Zahodna Slovenija	102.0	95	Strong -	-4.1

RII 2017 shows performance in 2017 relative to that of the EU in 2011. Rank shows the rank performance in 2017 across all regions. Group shows the respective performance group. Change shows the performance change over time calculated as the difference between the performance in 2017 (RII 2017) relative to that of the EU in 2011 and performance in 2011 (RII 2011) relative to that of the EU in 2011.

Slovenia as a country is a Strong Innovator. Slovenia includes two NUTS 2 regions.

Zahodna Slovenija (SI04) is a Strong – Innovator, for which performance has declined (-4.1%). Vzhodna Slovenija (SI03) is a Moderate + Innovator, for which performance has improved (6.3%).



SLOVAKIA



NUTS	Region	RII 2017	Rank	Group	Change
SK01	Bratislavský kraj	104.1	88	Strong	14.3
SK02	Západné Slovensko	69.6	144	Moderate	6.5
SK03	Stredné Slovensko	66.1	154	Moderate	0.6
SK04	Východné Slovensko	71.9	141	Moderate +	13.6

RII 2017 shows performance in 2017 relative to that of the EU in 2011. Rank shows the rank performance in 2017 across all regions. Group shows the respective performance group. Change shows the performance change over time calculated as the difference between the performance in 2017 (RII 2017) relative to that of the EU in 2011 and performance in 2011 (RII 2011) relative to that of the EU in 2011.

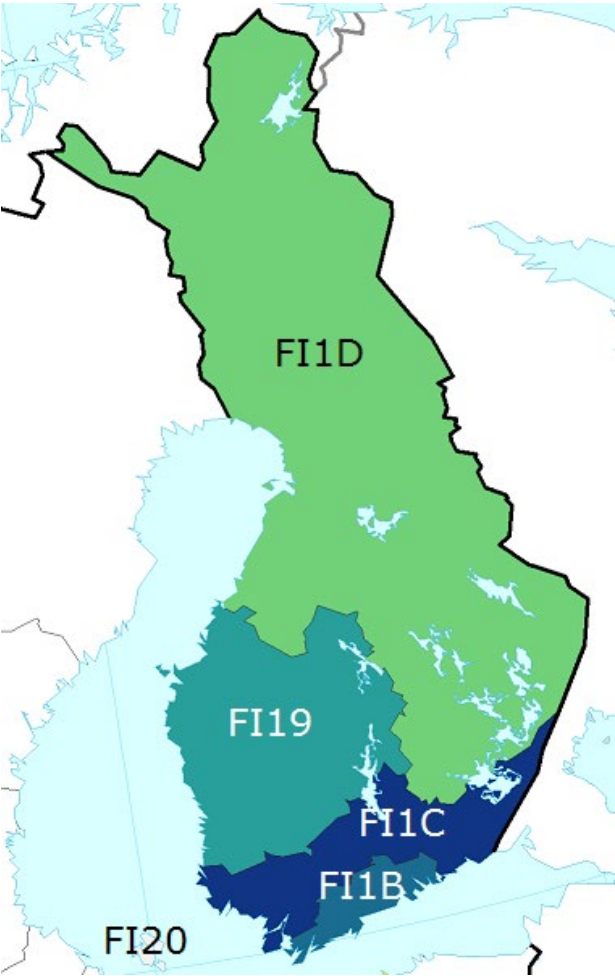
Slovakia as a country is a Moderate Innovator. Slovakia includes four NUTS 2 regions.

Bratislavský kraj (SK01), the capital region, is a Strong Innovator and the most innovative region in Slovakia. Východné Slovensko (SK04) is a Moderate + Innovator, the other two regions are Moderate Innovators.

Performance has increased strongly for both Bratislavský kraj (SK01) and Východné Slovensko (SK04).



FINLAND



NUTS	Region	RII 2017	Rank	Group	Change
FI19	Länsi-Suomi	122.2	50	Leader -	-2.5
FI1B	Helsinki-Uusimaa	128.6	35	Leader	1.3
FI1C	Etelä-Suomi	139.5	17	Leader +	-3.0
FI1D	Pohjois- ja Itä-Suomi	115.2	64	Strong +	-1.2
FI20	Åland ±	--	--	--	--

RII 2017 shows performance in 2017 relative to that of the EU in 2011. Rank shows the rank performance in 2017 across all regions. Group shows the respective performance group. Change shows the performance change over time calculated as the difference between the performance in 2017 (RII 2017) relative to that of the EU in 2011 and performance in 2011 (RII 2011) relative to that of the EU in 2011.

± Not included due to insufficient data.

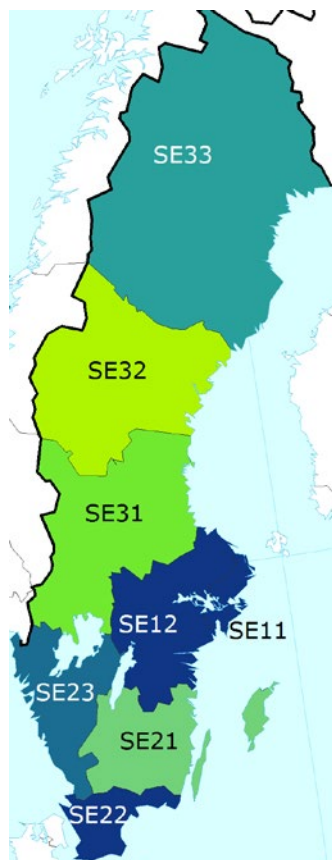
Finland as a country is an Innovation Leader. Finland includes one NUTS 1 and four NUTS 2 regions.

The three southernmost NUTS 2 regions are all Innovation Leaders. *Etelä-Suomi* (FI1C) is a Leader +, *Helsinki-Uusimaa* (FI1B) is a Leader, and *Länsi-Suomi* (FI19) is a Leader -. *Pohjois- ja Itä-Suomi* (FI1D) is a Strong + Innovator.

Performance has decreased for three regions. Only for *Helsinki-Uusimaa* (FI1B) performance has increased.



SWEDEN



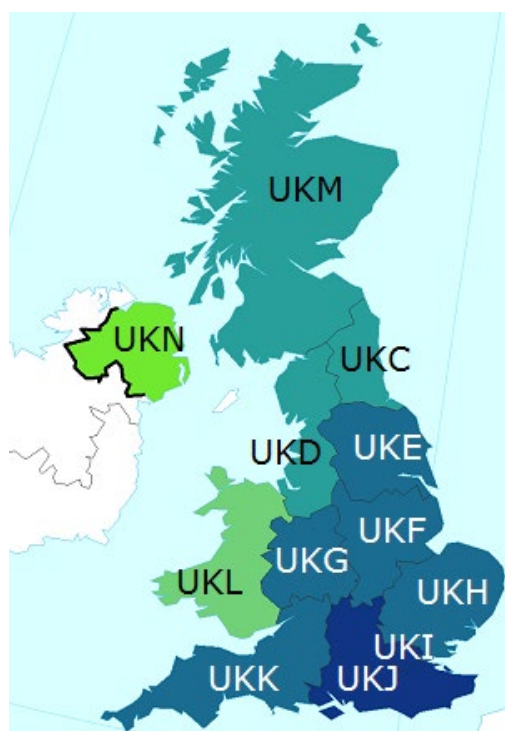
NUTS	Region	RII 2017	Rank	Group	Change
SE11	Stockholm	165.1	3	Leader +	14.0
SE12	Östra Mellansverige	146.3	10	Leader +	2.5
SE21	Småland med öarna	110.3	73	Strong +	-2.0
SE22	Sydsverige	141.8	14	Leader +	-6.8
SE23	Västssverige	138.3	22	Leader	1.4
SE31	Norra Mellansverige	102.7	92	Strong	7.9
SE32	Mellersta Norrland	101.6	97	Strong -	-0.6
SE33	Övre Norrland	121.8	51	Leader -	0.4

RII 2017 shows performance in 2017 relative to that of the EU in 2011. Rank shows the rank performance in 2017 across all regions. Group shows the respective performance group. Change shows the performance change over time calculated as the difference between the performance in 2017 (RII 2017) relative to that of the EU in 2011 and performance in 2011 (RII 2011) relative to that of the EU in 2011.

Sweden as a country is an Innovation Leader. Sweden includes eight NUTS 2 regions. *Stockholm* (SE11), the capital region, is an Innovation Leader + and the most innovative region. Also *Östra Mellansverige* (SE12) and *Sydsverige* (SE22) are Innovation Leaders +. *Västssverige* (SE23) is an Innovation Leader and *Övre Norrland* (SE33) an Innovation Leader -. *Småland med öarna* (SE21) is a Strong +, *Mellersta Norrland* (SE32) a Strong, and *Norra Mellansverige* (SE31) a Strong - Innovator. Four Swedish regions are among the top-25 most innovative European regions. Performance has increased for five regions, most strongly for *Stockholm* (SE11), and decreased for three regions.



UNITED KINGDOM



NUTS	Region	RII 2017	Rank	Group	Change
UKC	North East	126.6	39	Leader -	15.4
UKD	North West	123.0	47	Leader -	5.2
UKE	Yorkshire and The Humber	130.2	29	Leader	21.6
UKF	East Midlands	134.2	24	Leader	16.0
UKG	West Midlands	128.6	34	Leader	17.0
UKH	East of England	139.1	19	Leader	6.5
UKI	London	141.1	15	Leader +	14.4
UKJ	South East	148.2	8	Leader +	15.9
UKK	South West	132.1	26	Leader	6.6
UKL	Wales	119.4	54	Strong +	10.2
UKM	Scotland	125.9	41	Leader -	8.1
UKN	Northern Ireland	109.5	77	Strong	15.6

RII 2017 shows performance in 2017 relative to that of the EU in 2011. Rank shows the rank performance in 2017 across all regions. Group shows the respective performance group. Change shows the performance change over time calculated as the difference between the performance in 2017 (RII 2017) relative to that of the EU in 2011 and performance in 2011 (RII 2011) relative to that of the EU in 2011.

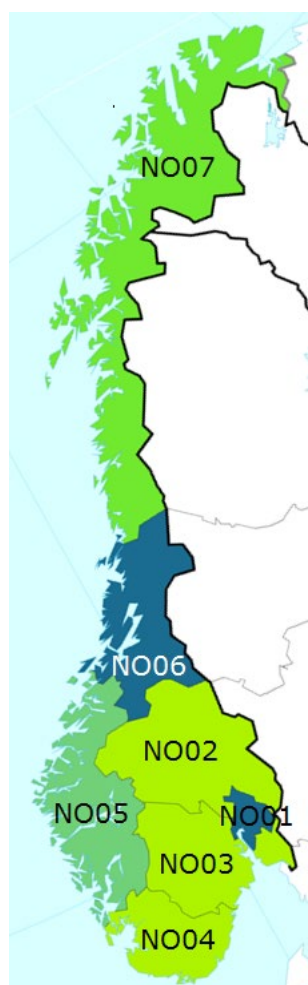
The United Kingdom as a country is an Innovation Leader. The United Kingdom includes 12 NUTS 1 regions.

Three regions are Innovation Leaders +, five regions are Innovation Leaders and three regions are Innovation Leaders -. *Wales* (UKL) is a Strong + Innovator, and *Northern Ireland* (UKN) is a Strong Innovator. The most innovative region is *South East* (UKJ), and with *London* (UKI), *East of England* (UKH), and *East Midlands* (UKF), it is within the Top-25 of most innovative European regions.

Performance has increased for all regions, most strongly for *Yorkshire and the Humber* (UKE) (+21.6%) and *West Midlands* (UKG) (+17.0%). For six more regions, performance has increased by more than 10%: *North East* (UKC), *East Midlands* (UKF), *London* (UKI), *South East* (UKJ), *Wales* (UKL), and *Northern Ireland* (UKN).



NORWAY



NUTS	Region	RII 2017	Rank	Group	Change
NO01	Oslo og Akershus	130.8	27	Leader	12.9
NO02	Hedmark og Oppland	90.8	113	Strong -	16.5
NO03	Sør-Østlandet	95.5	106	Strong -	5.5
NO04	Agder og Rogaland	100.2	99	Strong -	11.1
NO05	Vestlandet	114.8	65	Strong +	14.0
NO06	Trøndelag	139.0	20	Leader	20.0
NO07	Nord-Norge	106.1	85	Strong	29.9

RII 2017 shows performance in 2017 relative to that of the EU in 2011. Rank shows the rank performance in 2017 across all regions. Group shows the respective performance group. Change shows the performance change over time calculated as the difference between the performance in 2017 (RII 2017) relative to that of the EU in 2011 and performance in 2011 (RII 2011) relative to that of the EU in 2011.

Norway as a country is a Strong Innovator. Norway includes eight NUTS 2 regions.

Trøndelag (NO06) and Oslo og Akershus (NO01), the capital region, are both Innovation Leaders. Trøndelag (NO06) is also within the top-25 of most innovative European regions.

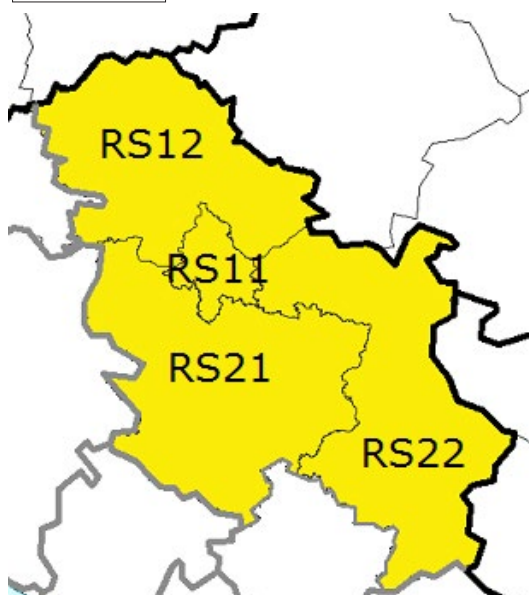
Vestlandet (NO05) is a Strong + Innovator, Nord-Norge (NO07) a Strong Innovator, and Hedmark og Oppland (NO02), Sør-Østlandet (NO03), and Agder og Rogaland (NO04) are Strong - Innovators.

Performance has increased for all regions, in particular for Nord-Norge (NO07) (+29.9%). Only for Sør-Østlandet (NO03), performance has increased by less than 10%.

These strong increases are almost entirely due to sharp increases in the performance on the CIS-based indicators between 2015, using CIS 2012 data, and 2017, using CIS 2014 data. The average increase for the indicators using other than CIS data is 5.4%. For the indicators using CIS data, it is 46.3%. The much higher CIS 2014 data are the result of a change in how these data have been collected. Up until the CIS 2012, data were collected in a combined innovation and R&D survey. For the CIS 2014, data were collected in a separate innovation survey. More details on these changes for Norway as a whole are available in the EIS 2017 Methodology Report.



SERBIA



NUTS	Region	RII 2017	Rank	Group	Change*
RS11	Belgrade	62.3	161	Moderate	17.6
RS12	Vojvodina	65.7	155	Moderate	18.3
RS21	Šumadija and Western Serbia	66.2	152	Moderate	18.4
RS22	Southern and Eastern Serbia	60.5	166	Moderate	17.3

RII 2017 shows performance in 2017 relative to that of the EU in 2011. Rank shows the rank performance in 2017 across all regions. Group shows the respective performance group. Change shows the performance change over time calculated as the difference between the performance in 2017 (RII 2017) relative to that of the EU in 2011 and performance in 2011 (RII 2011) relative to that of the EU in 2011.

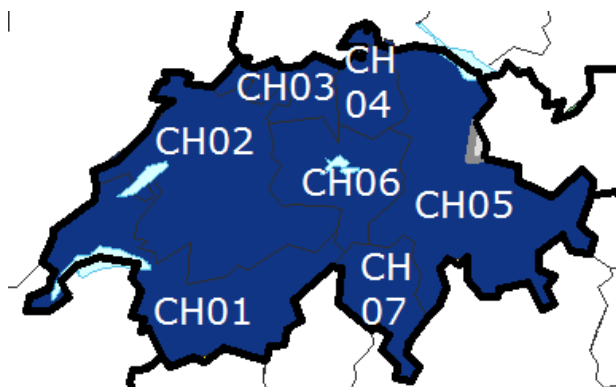
* For Serbia time series data are limited and the performance change over time is considered to be unreliable.

For Serbia, official NUTS codes are not available, as Eurostat and Serbia have not yet agreed on statistical regions for the country. This report uses the following unofficial codes as shown in the table.

Serbia as a country is a Moderate Innovator. Serbia includes four regions. All regions are also Moderate Innovators. Šumadija and Western Serbia (RS21) is the most innovative region.



SWITZERLAND



NUTS	Region	RII 2017	Rank	Group	Change
CH01	Région lémanique	147.9	9	Leader +	5.8
CH02	Espace Mittelland	143.0	12	Leader +	5.9
CH03	Nordwestschweiz	166.4	2	Leader +	9.7
CH04	Zürich	178.3	1	Leader +	13.0
CH05	Ostschweiz	149.6	7	Leader +	9.2
CH06	Zentralschweiz	155.0	4	Leader +	8.1
CH07	Ticino	152.5	6	Leader +	13.3

RII 2017 shows performance in 2017 relative to that of the EU in 2011. Rank shows the rank performance in 2017 across all regions. Group shows the respective performance group. Change shows the performance change over time calculated as the difference between the performance in 2017 (RII 2017) relative to that of the EU in 2011 and performance in 2011 (RII 2011) relative to that of the EU in 2011.

Switzerland as a country is an Innovation Leader. Switzerland includes seven NUTS 2 regions.

All Swiss regions are Innovation Leaders +, performing more than 40% above the EU average. The most innovative region is *Zürich* (CH04), performing about 78% above the EU average. All regions are within the top-25 of most innovative European regions, and six regions are even within the top-10.

Performance for all regions has increased, in particular for *Ticino* (CH07) and *Zürich* (CH04).

3.4 Performance changes over time

Performance of regional innovation systems changes over time. Comparing performance measured by the RII2011 and RII2017, for 128 regions performance of their regional innovation system has improved, and for 88 regions performance has worsened (Table 10).¹⁷ Where on average performance has increased for almost 60% of the regions, for the Innovation Leaders this share is above 75%. For the Strong and Moderate Innovators, it is close to 55%, but for the Modest Innovators, it is only close to 30%. Overall, not only is the share of regions with increasing performance larger than that of regions with decreasing performance, but the average rate of increase is with 6.6% also above the average rate of decrease of 4.8%. Over time, there has been a process of divergence in regional performance with increasing performance differences between regions. The spread in regional innovation performance, as measured by sigma convergence, has increased over time, despite a decline in this spread in the most recent period.¹⁸

Performance declines are observed in more geographically peripheral regions in the South and East of Europe, in particular in Finland, Italy, and Romania, but also in Central Europe, in particular in Germany. Performance has increased for all regions in Austria, Belgium, France, the Netherlands, Norway, Slovakia, Switzerland, and the UK and for more than 50% of regions in Greece, Italy, Poland, and Sweden. Performance has decreased for all regions in Romania, and for more than 50% of regions in Czech Republic, Denmark, Finland, Germany, Hungary, Portugal, and Spain.

Performance changes over time are visualised in Figure 3 using colour codes for eight different categories of performance change. Performance has increased in all green coloured regions, with darker shades of green showing higher degrees of performance increases. Performance has decreased in all purple coloured regions, with darker shades of purple showing higher levels of performance decreases.

As Table 11 shows, performance has increased very strongly by more than 10% for 31 regions, including regions from eight countries, in particular from the Netherlands (9), UK (8), and Norway (6). Performance has increased strongly between 5% and 10% for 32 regions, including regions from 13 countries, in particular from Switzerland (5), France (4), UK (4), Italy (3), the Netherlands (3), and Poland (3). Performance has increased moderately between 2.5% and 5% for 20 regions, including regions from 12 countries, in particular from Italy (5), Poland (5), and Germany (3). Performance has increased slightly between 0% and 2.5% for 40 regions, including regions of 17 countries, in particular from Germany (7), Spain (6), Greece (4), Italy (4), and Poland (4).

For 35 regions, performance has declined slightly between -2.5% and 0%, including regions of 12 countries, in particular from Italy (8), Germany (7), Spain (5), and Poland (3). For 22 regions, performance has declined moderately between -5% and -2.5%, including regions of 13 countries, in particular from Germany (8), Hungary (2), and Spain (2). For 19 regions, performance has declined strongly between -10% and -5%, including regions of eight countries, in particular from Germany (9). For 12 regions, performance has declined very strongly by more than 10%, including regions of five countries: Romania (7), Germany (2), the Czech Republic (1), Portugal (1) and Spain (1).

Table 10: Performance change over time by regional performance group

	All regions	Innovation Leaders	Strong Innovators	Moderate Innovators	Modest Innovators
Performance increase	128	41	32	48	7
Performance decrease	88	12	28	33	15
	216	53	60	81	22

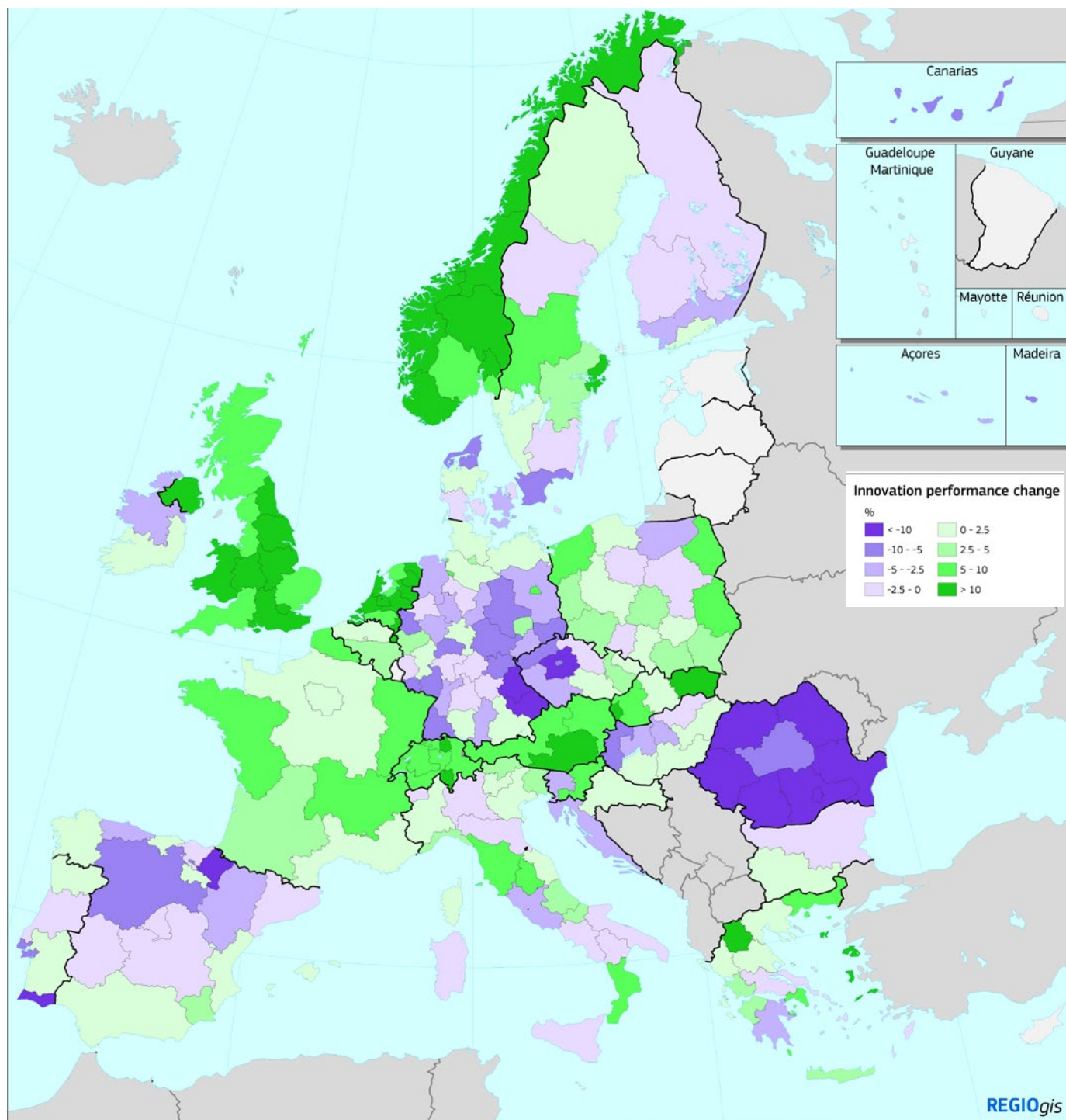
Table 11: Performance change over time by regional performance group

Increase	Regions	Decrease	Regions
Above 10%	31	Between -2.5% and 0%	35
Between 5% and 10%	32	Between -5% and -2.5%	22
Between 2.5% and 5%	20	Between -10% and -5%	19
Between 0% and 2.5%	45	Below -10%	12

¹⁷ The four Serbian regions are excluded from this analysis as availability of time series data is too low to guarantee reliable data for performance changes.

¹⁸ Sigma-convergence occurs when the spread in innovation performance across a group of regions falls over time. This spread in convergence is measured by the ratio of the standard deviation and the average performance of all regions. For the year measured by the RII 2011, the spread was 0.355, for the year measured by the RII 2015, the spread was 0.382 or a 7.6% increase, for the year measured by the RII 2017, the spread was 0.371, a decrease compared to the year measured by the RII 2015, but still a 5.1% increase compared to the year measured by the RII 2011.

Figure 3: Innovation performance change 2011-2017



3.5 Comparison with the Regional Competitiveness Index

This section compares the Regional Innovation Index (RII) and the Regional Competitiveness Index (RCI) (Annoni, Dijkstra and Gargano, 2016).¹⁹ A similar comparison has been made in the RIS 2012 report comparing the RII with the RCI 2010, finding a strong and positive relationship.

Launched in 2010 and published every three years, the RCI allows regions to monitor and assess their competitiveness over time and in comparison to other regions. It provides a European perspective on the competitiveness of regions in the EU and builds on the approach of the Global Competitiveness Index of the World Economic Forum. The RCI is composed of 11 pillars that describe different aspects of competitiveness. Through these pillars, the index assesses the strengths and weaknesses of a region. These pillars are classified into three groups: Basic, Efficiency and Innovation. The Basic group includes five pillars: (1) Institutions; (2) Macroeconomic Stability; (3) Infrastructures; (4) Health; and (5) Basic Education. These represent the key basic drivers of all types of economies. As a regional economy develops and advances in its competitiveness, factors related to a more skilled labour force and a more efficient labour market come into play as part of the Efficiency group. This includes three pillars: (6) Higher Education, Training and Lifelong Learning; (7) Labour

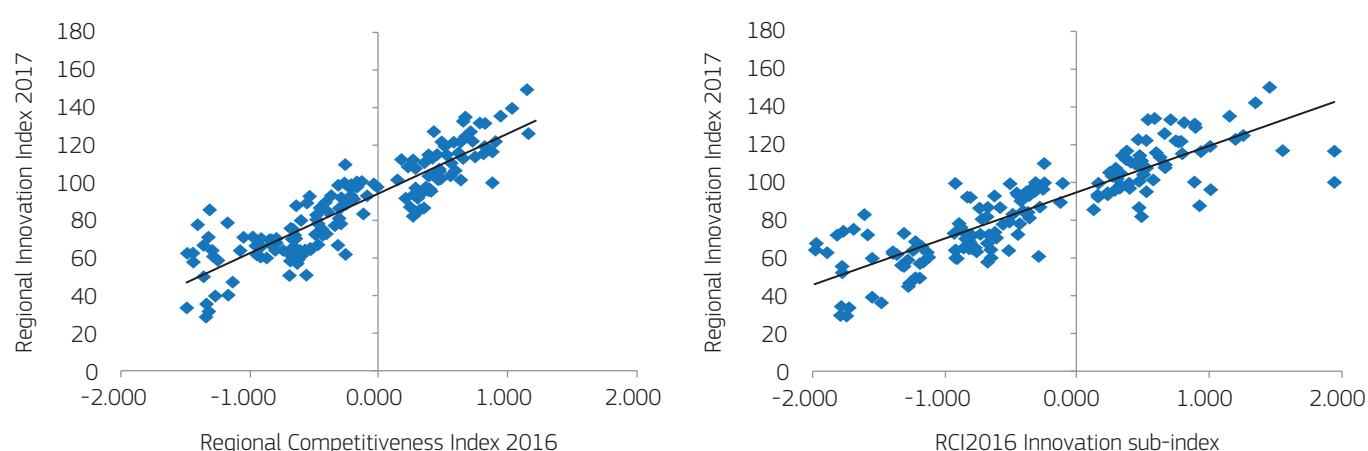
Market Efficiency; and (8) Market Size. At the most advanced stage of a regional economy's development, drivers of improvement are part of the Innovation group, which consists of three pillars: (9) Technological Readiness; (10) Business Sophistication; and (11) Innovation.

The RCI is computed as the weighted average of the scores for each group Basic, Efficiency and Innovation, with weights depending on the development stage of a region. In total 74 indicators are used to calculate values for the eleven pillars and consequently for the three groups.²⁰

Correlation of the RII and RCI

Figure 4 depicts the relationship between the RII scores (vertical axis) and the RCI scores (horizontal axis). The RII and RCI are strongly and positively related. With 151 observations, the correlation is 0.884 between the RII 2017 and RCI 2016. The correlation between the RII with the Innovation sub-index is only a little bit lower at 0.864. These results suggest that regions which are more innovative are also more competitive, stressing the need for policy to stimulate improved performance in both.²¹

Figure 4: Scatter plot between RII 2017 and RCI 2016 and Innovation sub-index



¹⁹ The EU Regional Competitiveness Index 2016, Paola Annoni, Lewis Dijkstra and Nadia Gargano, European Commission Directorate-General for Regional and Urban Policy. http://ec.europa.eu/regional_policy/en/information/publications/working-papers/2017/the-eu-regional-competitiveness-index-2016

²⁰ More information on the conceptual framework can be found in the RCI 2016 report, pp. 14-16.

²¹ Based on correlation results, one cannot draw any conclusion on the direction of a possible causality relation, i.e. whether being more innovative triggers increased competitive performance or if being more competitive triggers increased innovation performance.

4. Performance maps per indicator

For each of the indicators used in the RIS 2017, regional performance is shown in geographical maps. Regions are grouped according to their performance relative to the EU average using the same thresholds applied in Section 3 of this report. For each indicator, the top-20 best performing regions are listed.²²

The distribution of relative performance scores varies strongly across indicators. For instance, almost 80 regions perform above 120% of the EU average on SMEs with product or process innovations and SMEs with marketing or organizational innovations (**Table 12**). By contrast, almost 80 regions perform below 50% of the EU average on Public-private co-publications. These differences reflect the fact that most indicator scores are not symmetrically distributed with equal shares of regions having high and low scores.²³

Table 12: Number of regions in different performance groups per indicator

	Performance above 120% of EU	Performance between 90% and 120% of EU	Performance between 50% and 90% of EU	Performance below 50% of EU
RIS 2017	53	60	85	22
Population having completed tertiary education ²	43	69	91	13
Lifelong learning ²	62	40	73	41
International scientific co-publications	52	50	79	39
Top 10% most-cited publications	102	63	45	10
R&D expenditure in the public sector	30	74	95	21
R&D expenditure in the business sector	33	41	81	65
Non-R&D innovation expenditure ⁴	56	80	57	20
SMEs with product or process innovations	79	60	47	34
SMEs with marketing or organisational innovations	77	55	45	43
SMEs innovating in-house	76	57	47	40
Innovative SMEs collaborating with others	62	37	70	51
Public-private co-publications	57	35	49	79
EPO patent applications ²	44	41	47	81
Trademark applications	23	67	101	29
Design applications	35	65	75	74
Employment in medium-high/high tech manufacturing and knowledge-intensive services ³	47	76	74	17
Exports of medium-high/high technology-intensive manufacturing ¹	40	74	69	35
Sales of new-to-market and new-to-firm innovations	17	54	122	27

¹ Data missing for two regions;

² Data missing for four regions;

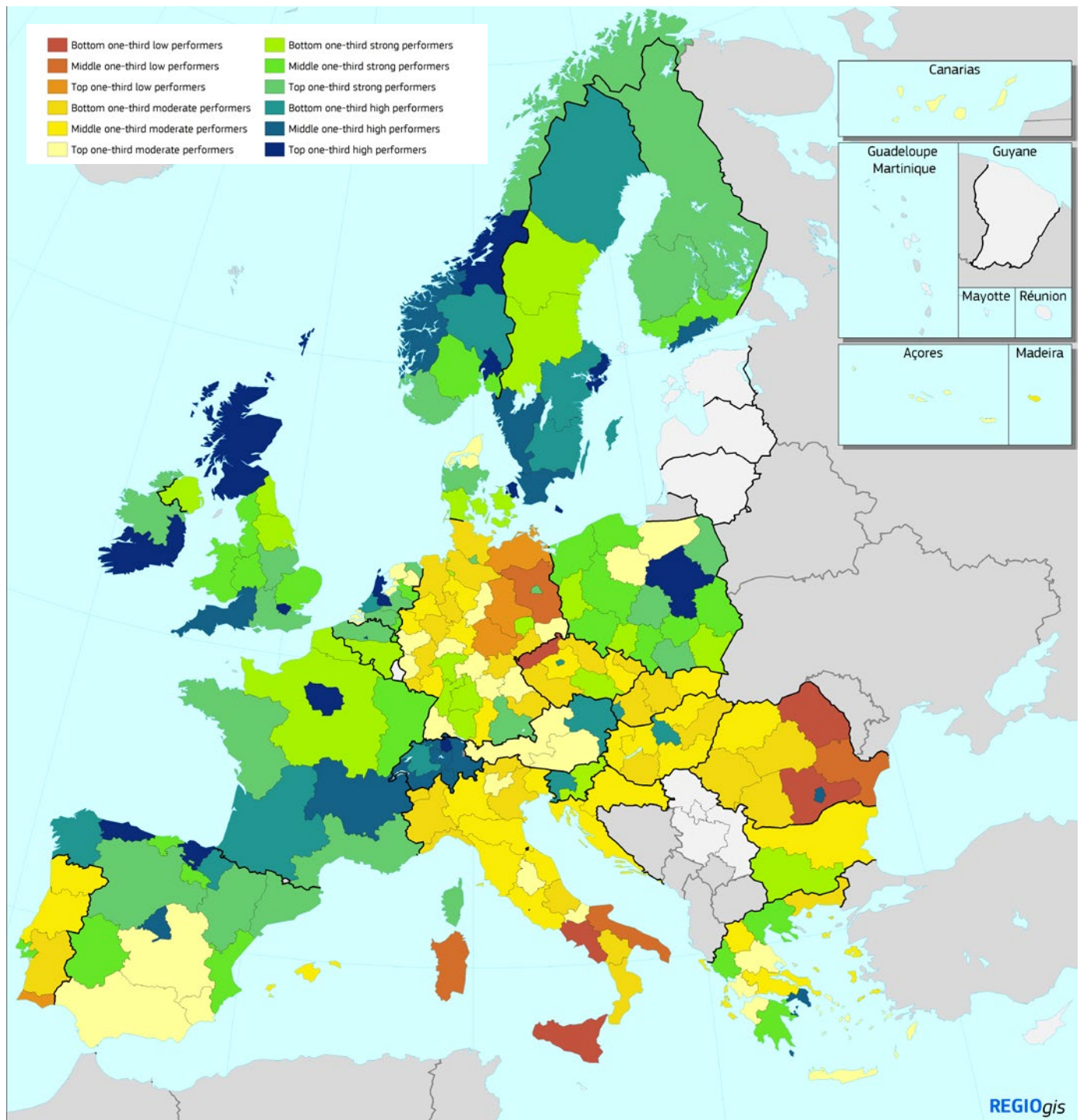
³ Data missing for six regions;

⁴ Data missing for seven regions.

²² Cyprus, Estonia, Latvia, Lithuania, Luxembourg and Malta, are excluded from the top-20 listings, although they might score highly on some indicators.

²³ An example is EPO patent applications, where 20 regions account for 50% of all patent applications.

Percentage population aged 30-34 having completed tertiary education

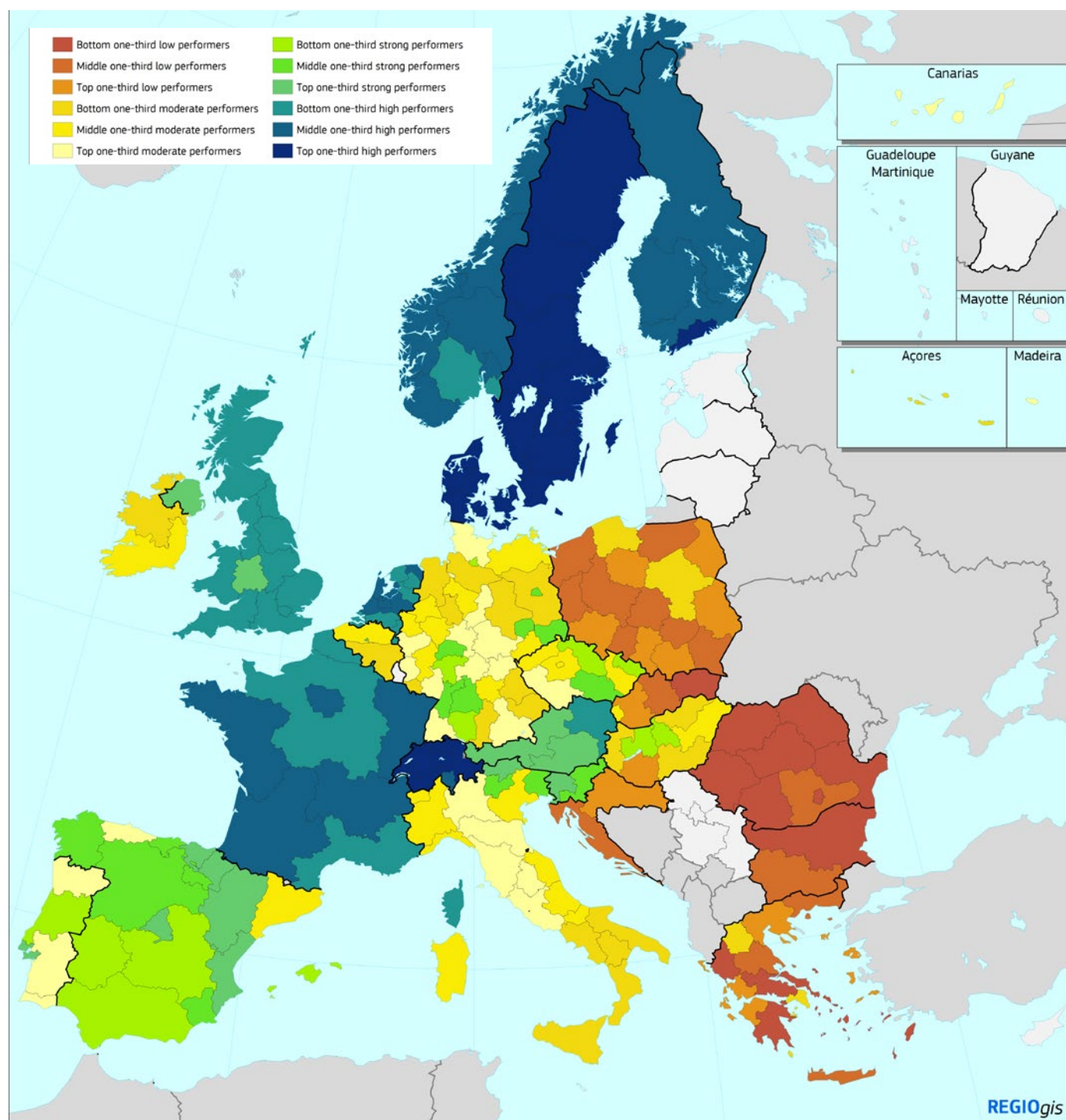


Tertiary education is not uniformly spread within each country. For instance, Tertiary education is below the EU average for the majority of regions in Germany; for only three German regions, it is above the EU average. Tertiary education is relatively weak in Croatia, the Czech Republic, Hungary, Italy, Portugal, Romania, and Slovakia. In many countries, performance is highest in capital regions, a direct result of above-average shares of employment in both public and private services, which typically employ more people with a tertiary degree.

The top-20 regions with the highest scores are (in descending order): London (UKI), Hovedstaden (DK01), Oslo og Akershus (NO01), Zürich (CH04), Stockholm (SE11), Scotland (UKM), Mazowieckie (PL12), Île de France (FR10), Utrecht (NL31), Trøndelag (NO06), Noord-Holland (NL32), Southern and Eastern (IE02), País Vasco (ES21), Principado de Asturias (ES12), Ticino (CH07), Helsinki-Uusimaa (FI1B), Zentralschweiz (CH06), Comunidad de Madrid (ES30), Vestlandet (NO05), and Västsverige (SE23).

No data for regions in Serbia.

Percentage population aged 25-64 participating in lifelong learning

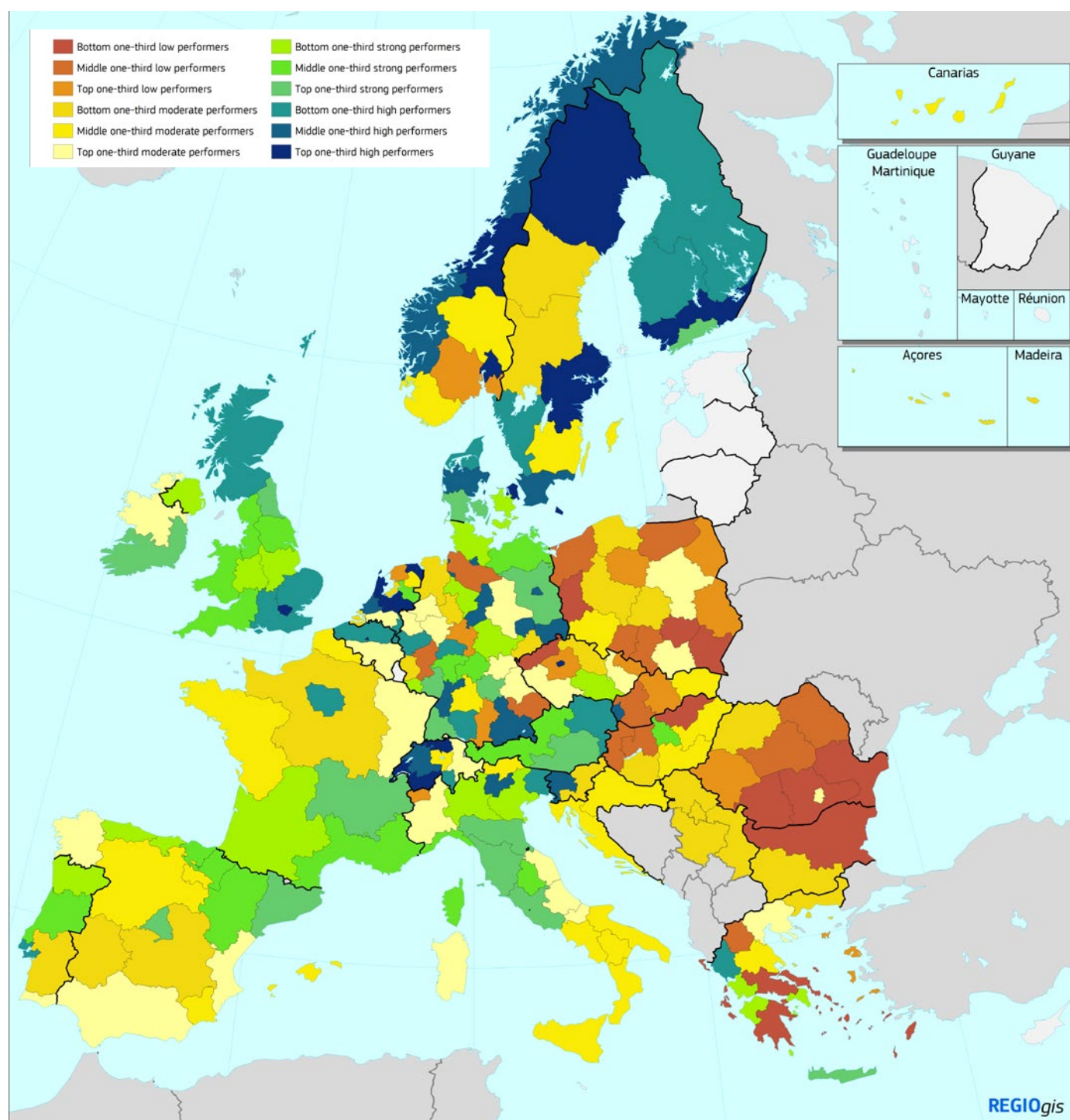


Lifelong learning is less spread within countries but more across countries. All regions in Denmark and Sweden are in the top one-third high performing group. In Switzerland, almost all regions are part of the top one-third high performing group, except for Ticino (CH07). All regions in Finland, France, the Netherlands, and Norway are in the high performing group. Participation in lifelong learning is more dispersed in other countries. For instance, in Italy, one region, Provincia Autonoma Bolzano (ITH1), is in the top one-third strong performing group and two regions, Provincia Autonoma Trento (ITH2) and Friuli-Venezia Giulia (ITH4), are in the middle one-third strong performing group. Other regions in Italy are either in the bottom, middle or top one-third moderate performing group.

The top-20 regions with the highest scores are (in descending order): Zürich (CH04), Hovedstaden (DK01), Nordwestschweiz (CH03), Zentralschweiz (CH06), Espace Mittelland (CH02), Ostschweiz (CH05), Stockholm (SE11), Västsverige (SE23), Midtjylland (DK04), Syddanmark (DK03), Sydsverige (SE22), Sjælland (DK02), Östra Mellansverige (SE12), Helsinki-Uusimaa (FI1B), Région lémanique (CH01), Nordjylland (DK05), Övre Norrland (SE33), Småland med öarna (SE21), Mellersta Norrland (SE32), and Norra Mellansverige (SE31).

No data for regions in Serbia.

International scientific co-publications per million population

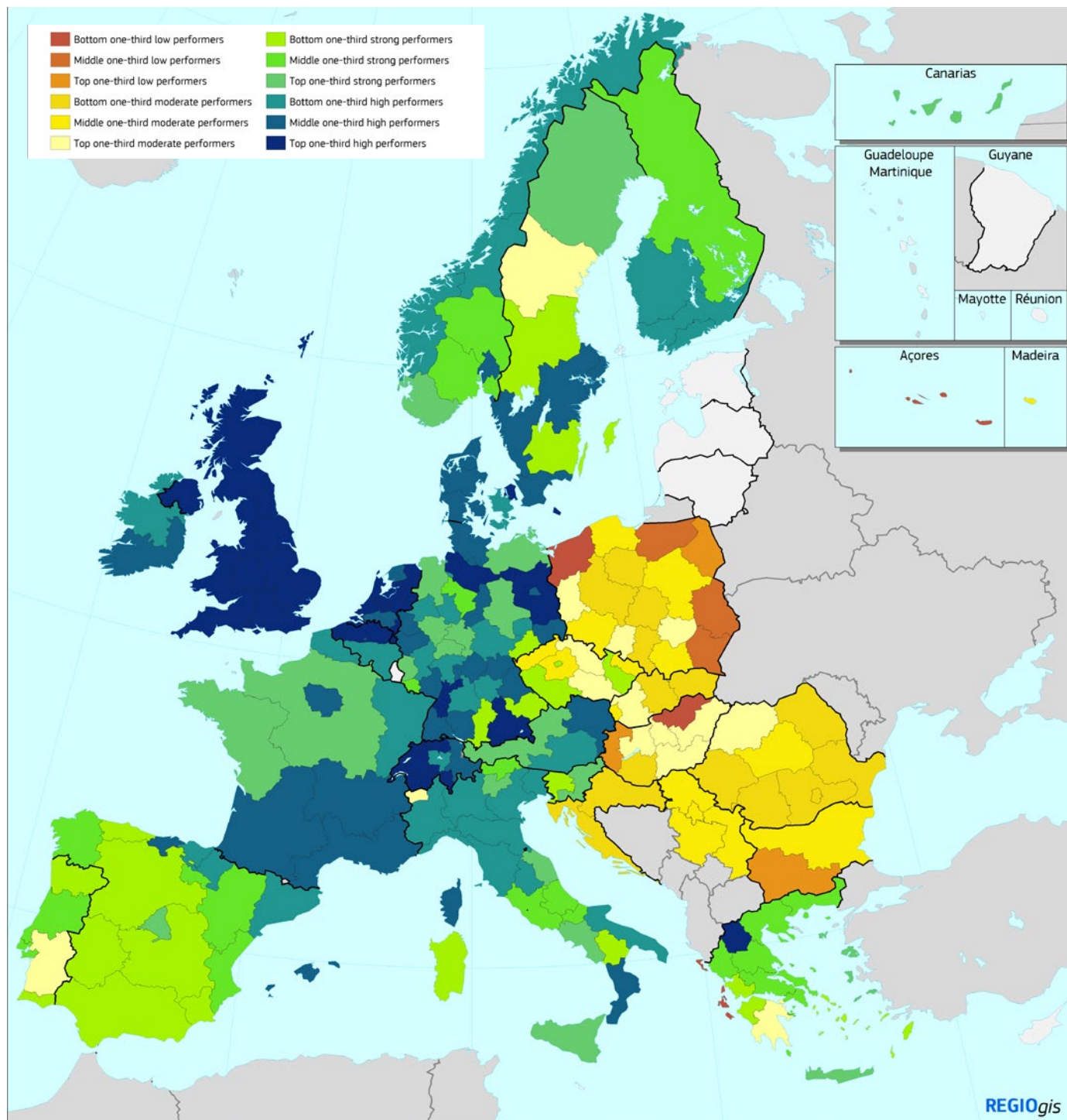


Regional performance on International scientific co-publications shows a large degree of variation within countries. For instance, in Sweden, some regions belong to the top one-third high performing group and other regions belong to the bottom one-third moderate performing group. A similar picture can be seen in the Czech Republic, Germany, Greece, Hungary, and Switzerland. In the Netherlands, performance is even more spread, with several regions belonging to the top one-third high performing group and one region belonging to the top one-third low performing group. Regions in Austria, Denmark, Finland, and the United Kingdom perform relatively well compared to other EU regions, with all regions belonging to either the strong or high performing groups.

The top-20 regions with the highest scores are (in descending order): Zürich (CH04), Région lémanique (CH01), Groningen (NL11), Hovedstaden (DK01), Nordwestschweiz (CH03), Trøndelag (NO06), Oslo og Akershus (NO01), Utrecht (NL31), Stockholm (SE11), Övre Norrland (SE33), Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest (BE1), Praha (CZ01), Östra Mellansverige (SE12), Etelä-Suomi (FI1C), Noord-Holland (NL32), London (UK1), Gelderland (NL22), Karlsruhe (DE12), Sydsverige (SE22), and Vestlandet (NO05).

For Serbia, regional data are not available, and all regions have the same score as the country.

Scientific publications among the top-10% most cited publications worldwide as percentage of total scientific publications of the region

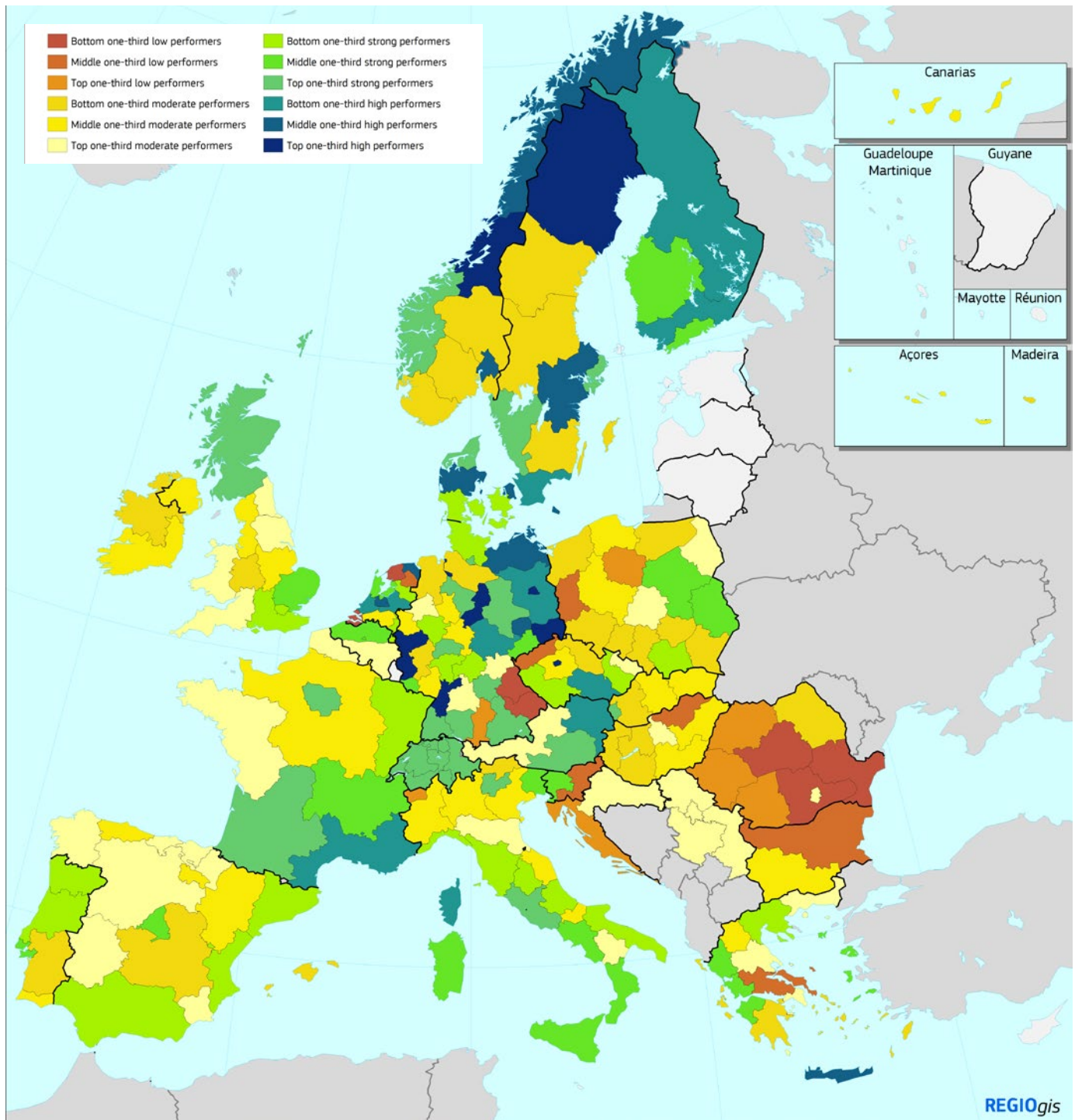


Scientific publications among the top-10% most cited are less spread within countries but more across countries. All regions in the United Kingdom belong to the top one-third high performing regions, most of the regions in the Netherlands also belong to this group, and two other Dutch regions belong to the middle one-third high performing regions. Other top one-third performing regions are located in Belgium, Denmark, Germany, Greece, and Switzerland. Performance is relatively weak in Bulgaria, Croatia, Hungary, Poland, Romania, Serbia, and Slovakia.

The top-20 regions with the highest scores are (in descending order): East of England (UKH), Zeeland (NL34), London (UKI), Zürich (CH04), Région lémanique (CH01), South East (UKJ), Dytiki Makedonia (EL53), Drenthe (NL13), South West (UKK), Noord-Holland (NL32), Lüneburg (DE93), Utrecht (NL31), North East (UKC), Groningen (NL11), Nordwestschweiz (CH03), Gelderland (NL22), Zuid-Holland (NL33), Scotland (UKM), Hovedstaden (DK01), and West Midlands (UKG).

For Serbia, regional data are not available, and all regions have the same score as the country.

R&D expenditure in the public sector as percentage of GDP

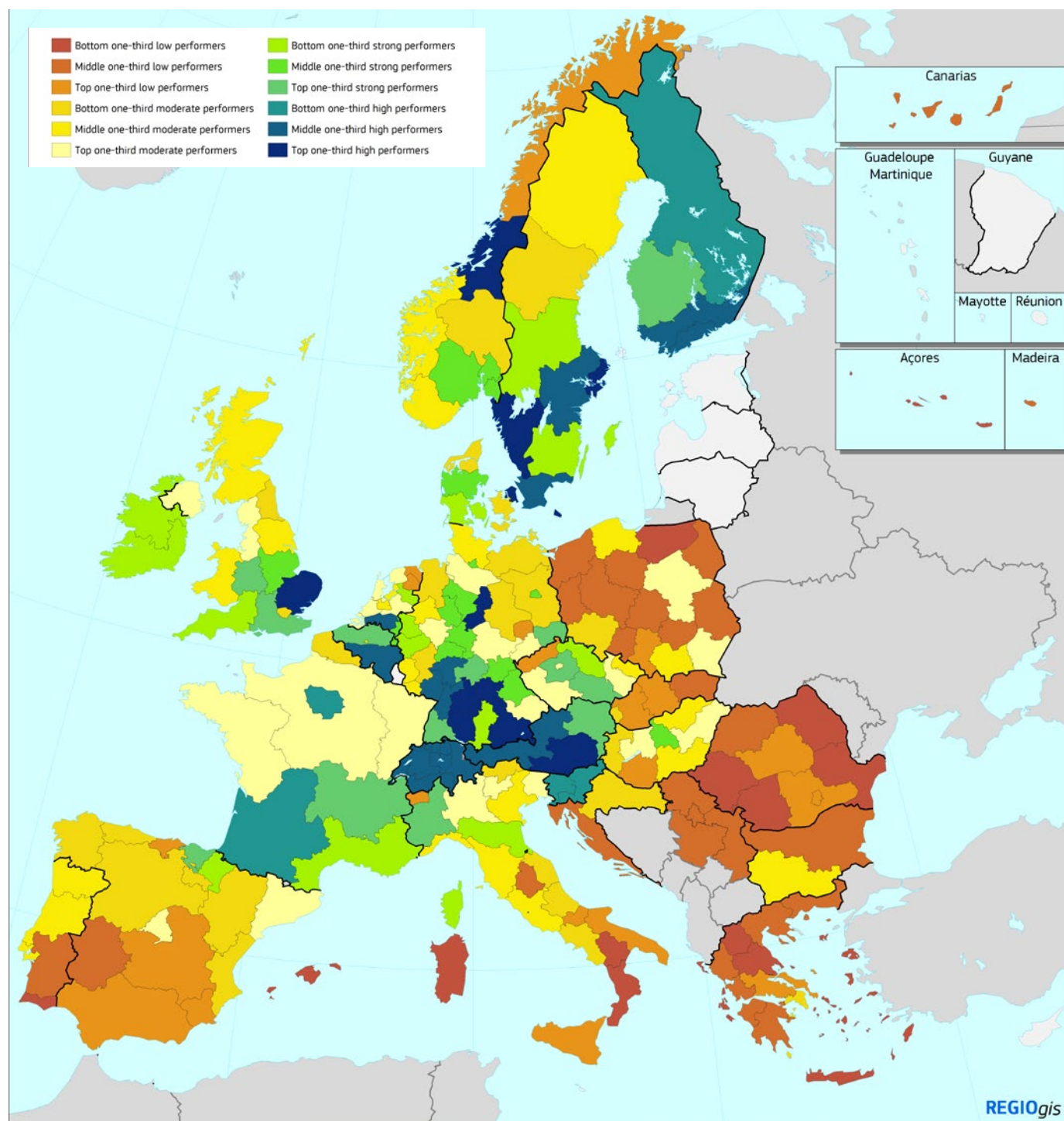


High Public R&D expenditure is observed in capital regions, but also in non-capital regions. Public R&D expenditures are particularly high in several regions in Germany, but also in Denmark, Finland, the Netherlands, Norway and Sweden. There are also several high performing regions in Southern Europe, Kriti (EL43), and Eastern Europe, Praha (CZ01) and Jihovýchod (CZ06). Regions in Bulgaria and Romania perform relatively weak on R&D expenditures in the public sector. Regions in the South of France, Italy, and Spain perform relatively better than regions located in the North of these countries.

The top-20 regions with the highest scores are (in descending order): Trier (DEB2), Dresden (DED2), Braunschweig (DE91), Berlin (DE30), Trøndelag (NO06), Övre Norrland (SE33), Praha (CZ01), Köln (DEA2), Bremen (DE50), Karlsruhe (DE12), Groningen (NL11), Leipzig (DED5), Hovedstaden (DK01), Östra Mellansverige (SE12), Oslo og Akershus (NO01), Utrecht (NL31), Mecklenburg-Vorpommern (DE80), Midtjylland (DK04), Kriti (EL43), and Nord-Norge (NO07).

For Serbia and Switzerland, regional data are not available, and all regions have the same score as the country.

R&D expenditure in the business sector as percentage of GDP

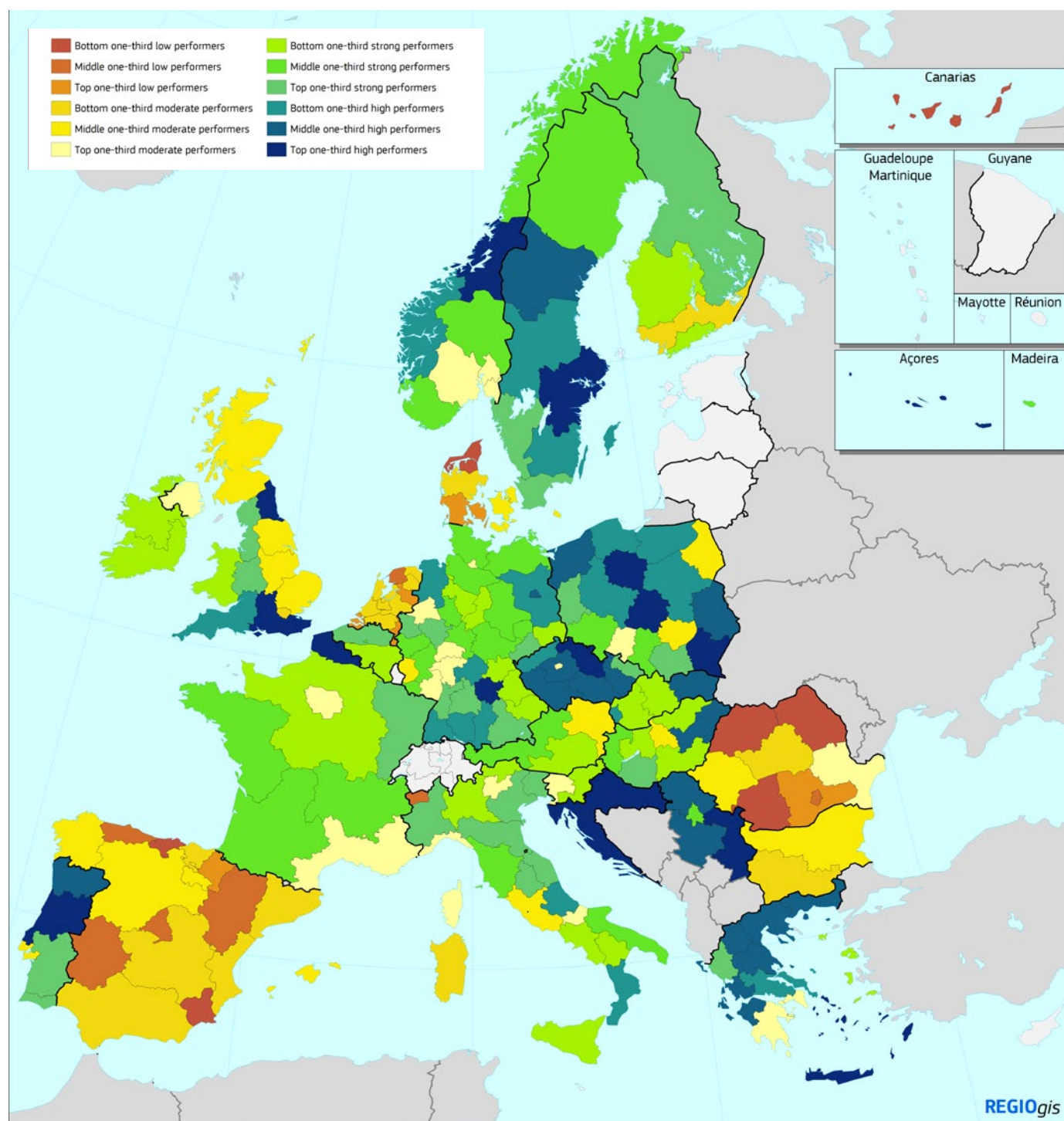


Regions belonging to the top one-third high performing group in Business R&D expenditures are located in just a few countries: Austria, Denmark, Germany, Norway, Sweden, and the United Kingdom. All regions in Slovenia and Switzerland belong to the high performing regions. Most of the regions in Finland belong to the high performing group except for Länsi-Suomi (FI19), which belongs to the top one-third strong performing group. Regions in the South of Sweden and France also perform well on R&D expenditures in the business sector. Most of the regions in Southern European countries perform relatively weak on Business R&D expenditures, except for some regions in the North of Spain, País Vasco (ES21) and Comunidad Foral de Navarra (ES22), and in the North of Italy, Emilia-Romagna (ITH5) and Piemonte (ITC1), which belong to the strong performing group.

The top-20 regions with the highest scores are (in descending order): Stuttgart (DE11), Braunschweig (DE91), Tübingen (DE14), Oberbayern (DE21), Südosterreich (AT2), Hovedstaden (DK01), Stockholm (SE11), Mittelfranken (DE25), Trøndelag (NO06), Västsverige (SE23), East of England (UKH), Karlsruhe (DE12), Etelä-Suomi (FI1C), Sydsverige (SE22), Darmstadt (DE71), Rheinhessen-Pfalz (DEB3), Helsinki-Uusimaa (FI1B), Région Wallonne (BE3), Östra Mellansverige (SE12), and Noord-Brabant (NL41).

For Serbia and Switzerland, regional data are not available, and all regions have the same score as the country.

Non-R&D innovation expenditures in SMEs as percentage of turnover

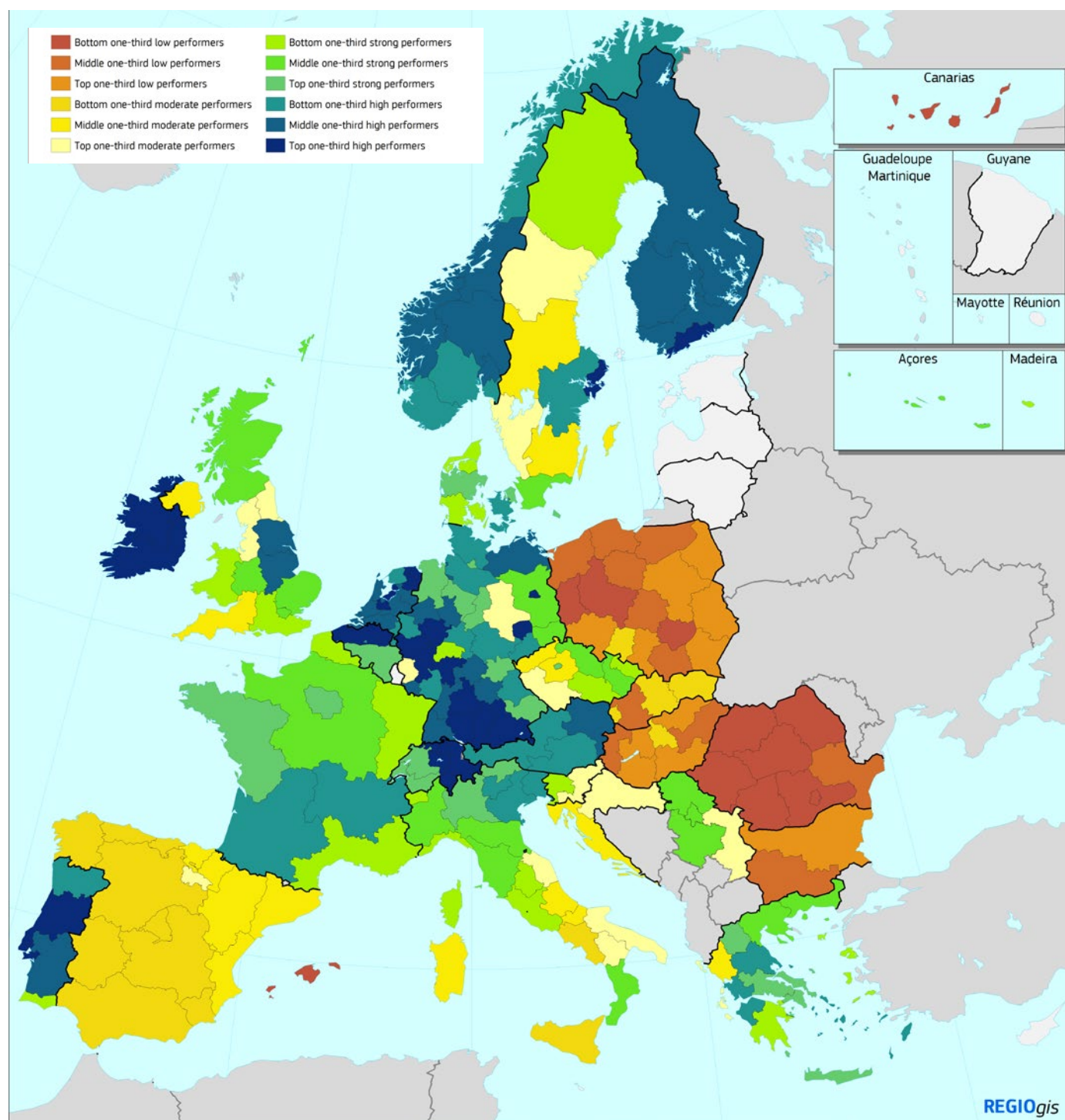


Regions with a high share of Non-R&D innovation expenditures in SMEs are dispersed across the whole of Europe, with at least one region belonging to the top one-third high performing group in 11 countries. Both Croatian regions, Jadranska Hrvatska (HR03) and Kontinentalna Hrvatska (HR04), are in the top one-third high performing group. The share of Non-R&D innovation expenditures is low in Bulgaria, Denmark, the Netherlands, Romania, and Spain, where all regions are either in the moderate or low performing group.

The top-20 regions with the highest scores are (in descending order): Trøndelag (NO06), Stockholm (SE11), Östra Mellansverige (SE12), Podkarpackie (PL32), Região Autónoma dos Açores (PT20), Severovýchod (CZ05), Jadranska Hrvatska (HR03), Notio Aigaio (EL42), Nord - Pas-de-Calais (FR30), Kujawsko-Pomorskie (PL61), Centro (PT16), Southern and Eastern Serbia (RS22), Kontinentalna Hrvatska (HR04), South East (UKJ), Mittelfranken (DE25), North East (UKC), Łódzkie (PL11), Kriti (EL43), Šumadija and Western Serbia (RS21), and Jihovýchod (CZ06).

No data for regions in Switzerland.

SMEs introducing product or process innovations as percentage of SMEs

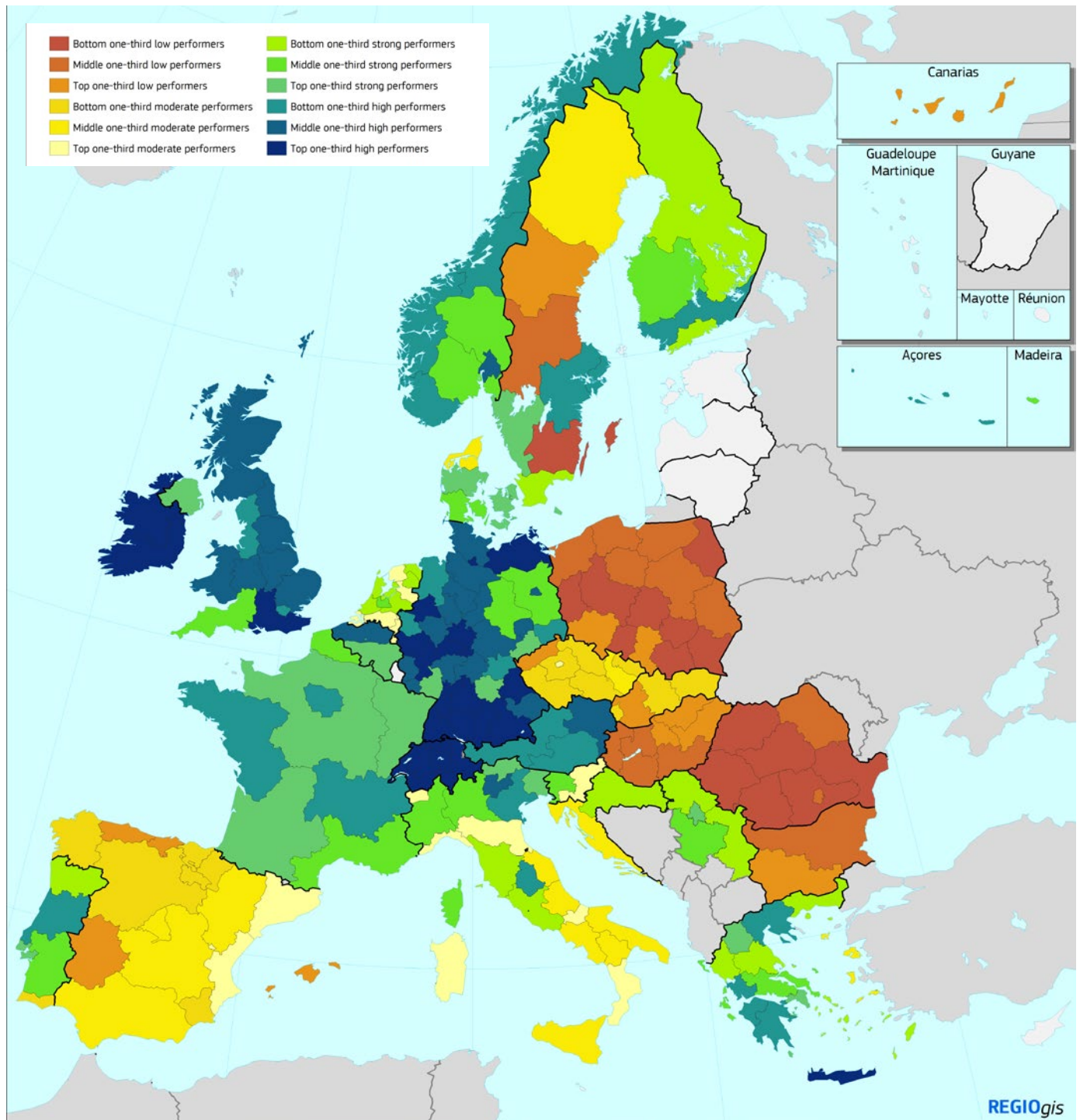


In most countries, there is little variation in regional performance in the share of SMEs that introduced a product or process innovation. Regions in Austria, Bulgaria, Finland, Ireland, Norway, and Spain (except Illes Balears (ES53) and Canarias (ES70), all perform at a level close to the country average. Performance is more spread in the Czech Republic, with the capital region Praha (CZ01) belonging to the top one-third strong performers, whereas Severozápad (CZ04) belongs to the bottom one-third moderate performing group. Similar differences within countries are observed in Germany, Greece, Hungary, Italy, Portugal, Sweden, and the United Kingdom. Performance is relatively strong in regions in Austria, Finland, Ireland, the Netherlands, and Norway, with all regions belonging

to the high performing group, and relatively weak in regions in Bulgaria, Hungary, Poland, and Romania, with either all or most of the regions belonging to the low performing group.

The top-20 regions with the highest scores are (in descending order): Stockholm (SE11), Zürich (CH04), Ticino (CH07), Ostschweiz (CH05), Vlaams Gewest (BE2), Köln (DEA2), Tübingen (DE14), Stuttgart (DE11), Utrecht (NL31), Leipzig (DED5), Koblenz (DEB1), Border, Midland and Western (IE01), Schwaben (DE27), Centro (PT16), Drenthe (NL13), Groningen (NL11), Nordwestschweiz (CH03), Berlin (DE30), Southern and Eastern (IE02), and Arnsberg (DEA5).

SMEs introducing marketing or organisational innovations as percentage of SMEs

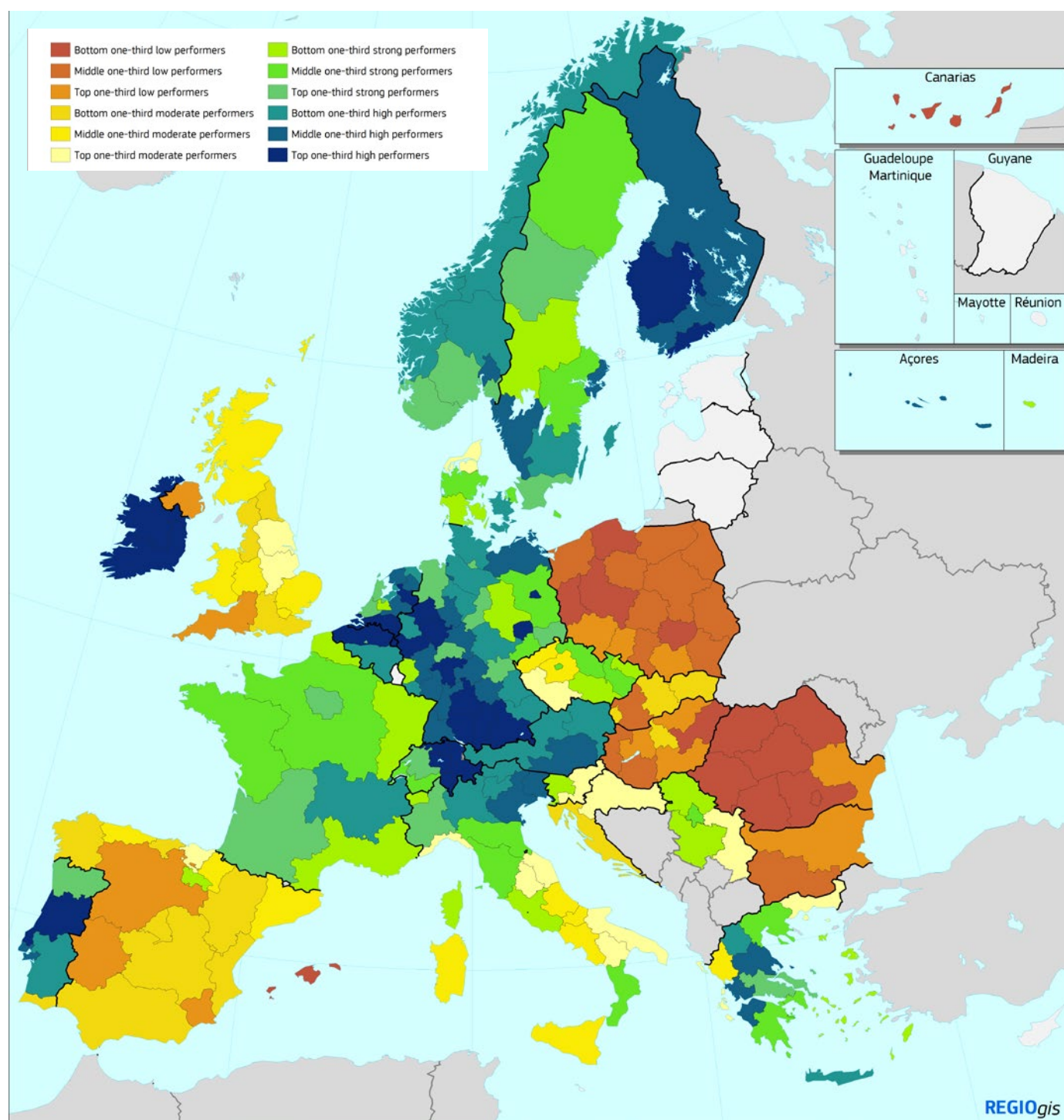


In most countries, there is little variation in regional performance in the share of SMEs that introduced a marketing or organisational innovation. Therefore, there are not that many differences observed within most countries. Regions with a strong or high performance are mostly found in Austria, Belgium, Finland, France, Germany, Greece, Ireland, Norway, Serbia, Switzerland, and the United Kingdom. Regions that predominantly belong to the moderate and low performing group can be found in Bulgaria, the Czech Republic, Hungary, Poland, Romania, Slovakia, and Spain. Performance in Sweden is rather diverse, with Stockholm (SE11) and Östra Mellansverige (SE12) belonging to the bottom one-third high

performing group, and Småland med öarna (SE21) belonging to the bottom one-third low performing group of regions.

The top-20 regions with the highest scores are (in descending order): Zürich (CH04), Ticino (CH07), Zentralschweiz (CH06), Tübingen (DE14), Ostschweiz (CH05), Schwaben (DE27), Hamburg (DE60), Köln (DEA2), Freiburg (DE13), Stuttgart (DE11), Nordwestschweiz (CH03), Münster (DEA3), Région lémanique (CH01), Oberbayern (DE21), Gießen (DE72), Karlsruhe (DE12), Southern and Eastern (IE02), Koblenz (DEB1), Kassel (DE73), and Espace Mittelland (CH02).

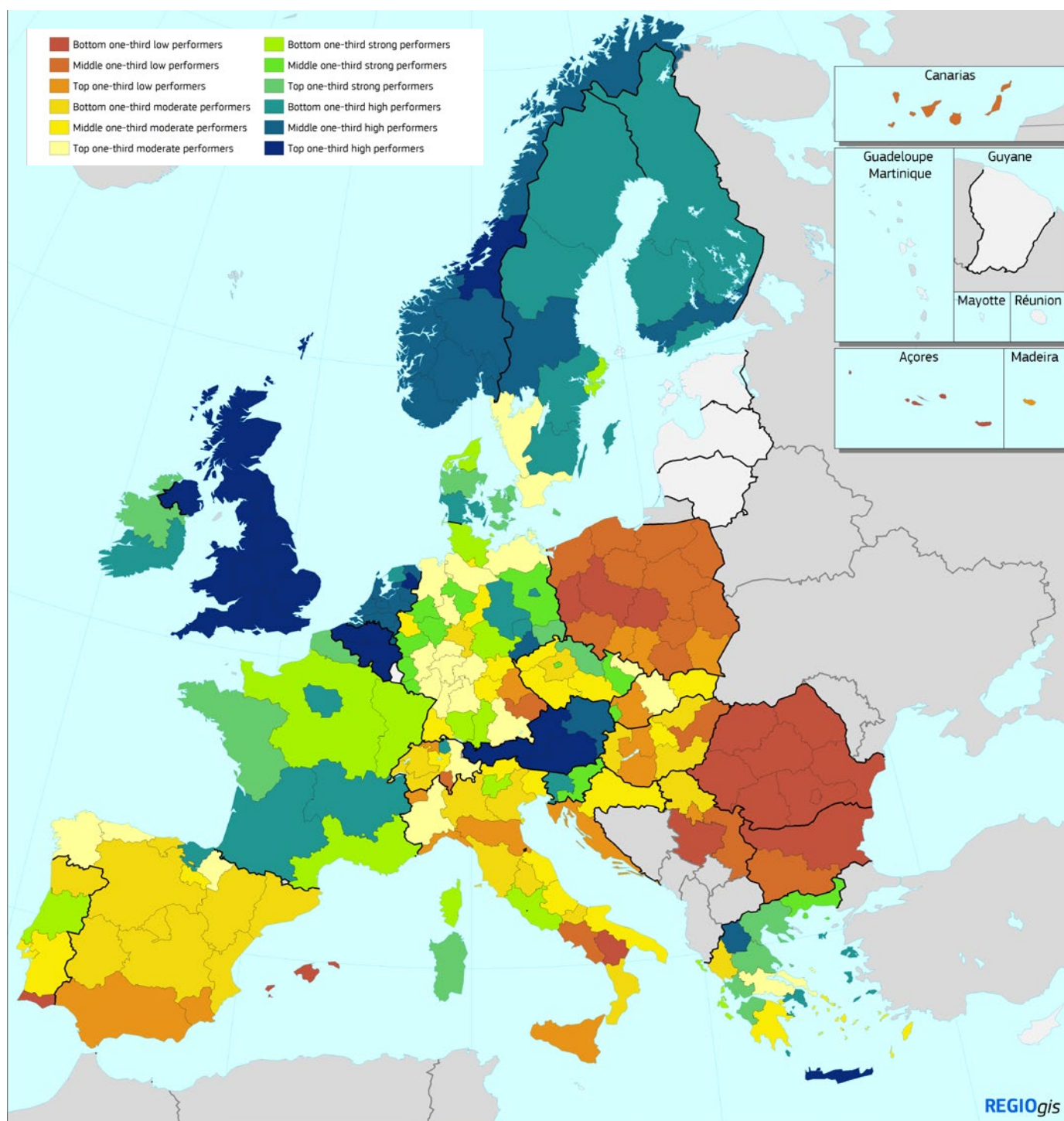
SMEs innovating in-house as percentage of SMEs



Regional performance on SMEs innovating in-house is less spread within countries but more across countries. Large differences in regional performance, as measured by the ratio between the relative performance of the best and lowest performing region in that country, are observed in Croatia, Greece, Italy, Portugal, Romania, and Spain. Strong and high performing regions are located mostly in Austria, Belgium, Finland, France, Germany, Ireland, the Netherlands, Norway, Portugal, Sweden, and Switzerland. Moderate and low performing regions are located mostly in Bulgaria, Croatia, Hungary, Poland, Romania, Slovakia, Spain, and the United Kingdom.

The top-20 regions with the highest scores are (in descending order): Ticino (CH07), Zürich (CH04), Tübingen (DE14), Ostschweiz (CH05), Stuttgart (DE11), Köln (DEA2), Vlaams Gewest (BE2), Centro (PT16), Nordwestschweiz (CH03), Zentralschweiz (CH06), Zeeland (NL34), Schwaben (DE27), Darmstadt (DE71), Leipzig (DED5), Arnsberg (DEA5), Limburg (NL42), Border, Midland and Western (IE01), Southern and Eastern (IE02), Oberbayern (DE21), and Overijssel (NL21).

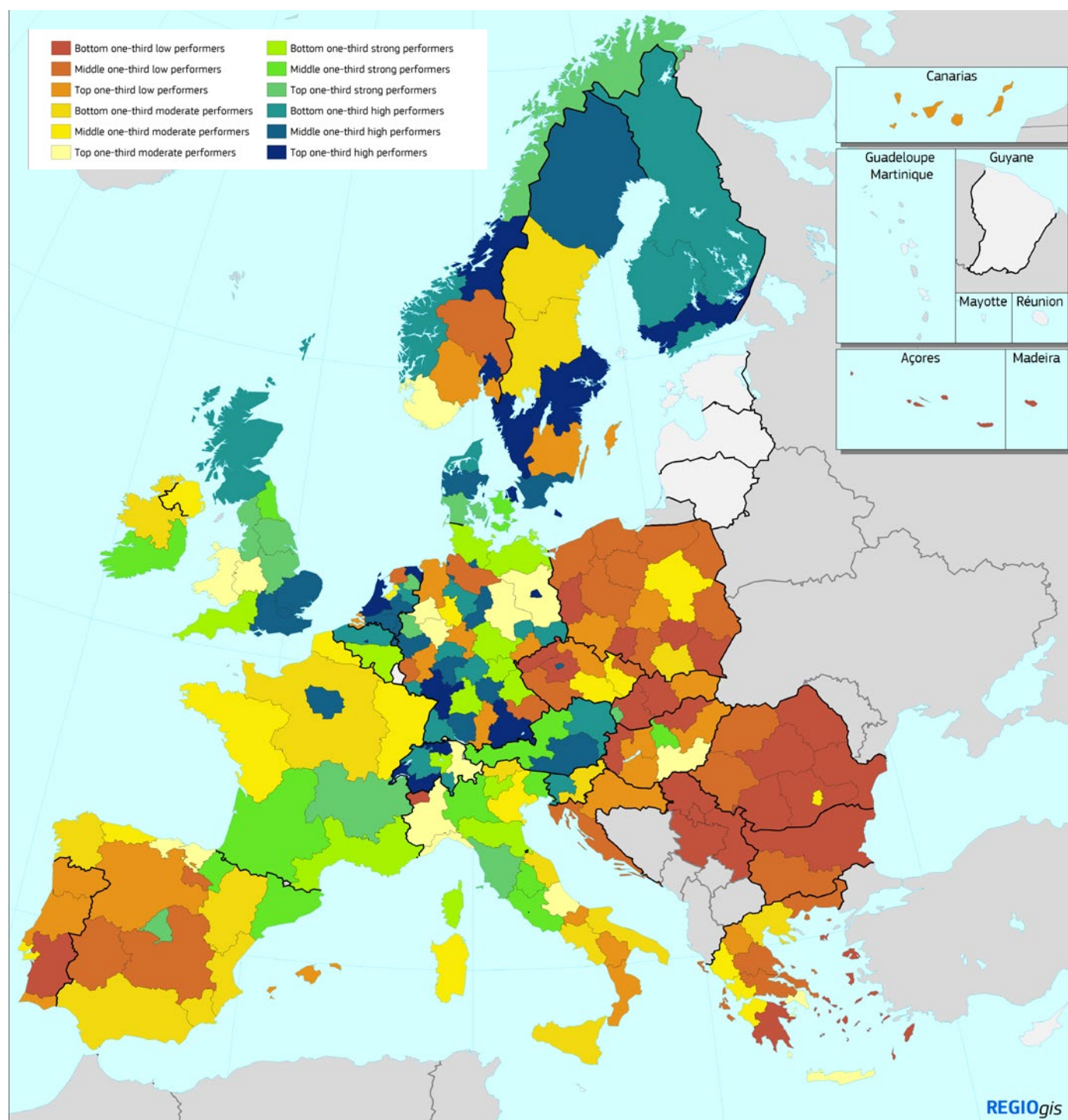
Innovative SMEs collaborating with others as percentage of SMEs



All of the regions in Belgium and the United Kingdom are among the top one-third high performing regions. Other top one-third performance regions are located in Austria, Greece, the Netherlands, and Norway. Regional performance is rather spread in Germany, with strong and high performance regions in parts of Eastern Germany, but low performance in regions in the Southeast of Germany. Other high performing regions are located in Denmark, Finland, France, Ireland, Slovenia, Spain, Sweden, and Switzerland. Low performing regions are located in as many as 12 countries: Bulgaria, Croatia, Germany, Hungary, Italy, Poland, Portugal, Romania, Serbia, Slovakia, Spain, and Switzerland.

The top-20 regions with the highest scores are (in descending order): Vlaams Gewest (BE2), Yorkshire and The Humber (UKE), East Midlands (UKF), South East (UKJ), North East (UKC), Scotland (UKM), West Midlands (UKG), Northern Ireland (UKN), Trøndelag (NO06), Wales (UKL), Région Wallonne (BE3), London (UKI), Südösterreich (AT2), East of England (UKH), North West (UKD), Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest (BE1), Kriki (EL43), Westösterreich (AT3), Drenthe (NL13), and South West (UKK).

Public-private co-publications per million population

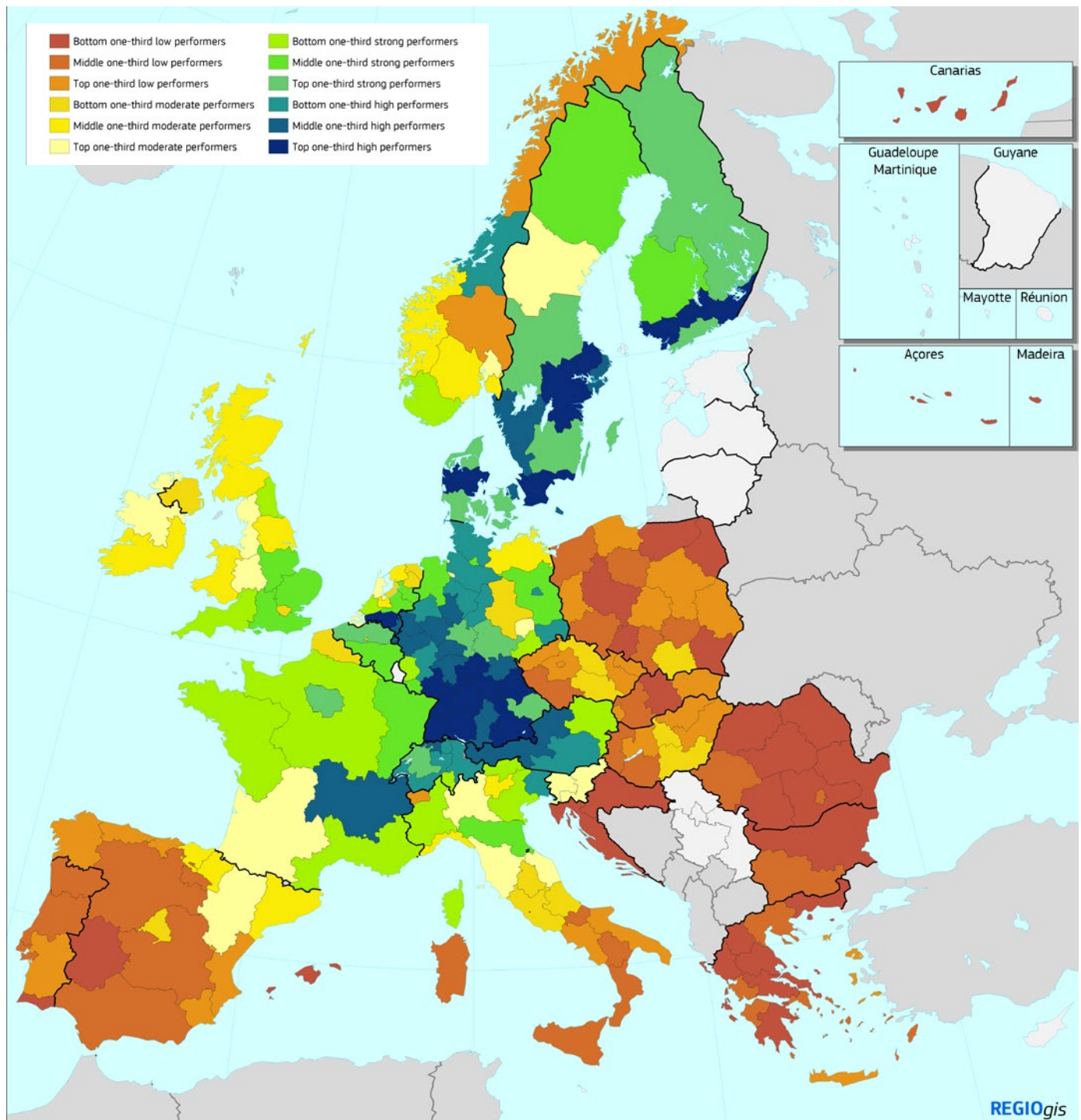


Regional performance on Public-private co-publications is widely spread within countries, most notably in the Czech Republic, Germany, the Netherlands, Norway, and Sweden, which all have at least one region in the high performing group of regions and one region in the low performing group. Similar differences across regions, although to a lesser extent, are observed in most of the other countries. Only in Bulgaria, Croatia, and Finland, all regions belong to the same performance group.

The top-20 regions with the highest scores are (in descending order): Nordwestschweiz (CH03), Hovedstaden (DK01), Zürich (CH04), Groningen (NL11), Utrecht (NL31), Région lémanique (CH01), Stockholm (SE11), Trøndelag (NO06), Östra Mellansverige (SE12), Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest (BE1), Etelä-Suomi (FI1C), Rheinhessen-Pfalz (DEB3), Karlsruhe (DE12), Västsverige (SE23), Zuid-Holland (NL33), Noord-Holland (NL32), Oberbayern (DE21), Oslo og Akershus (NO01), Berlin (DE30), and London (UK1).

For Serbia, regional data are not available, and all regions have the same score as the country.

EPO patent applications per billion regional GDP

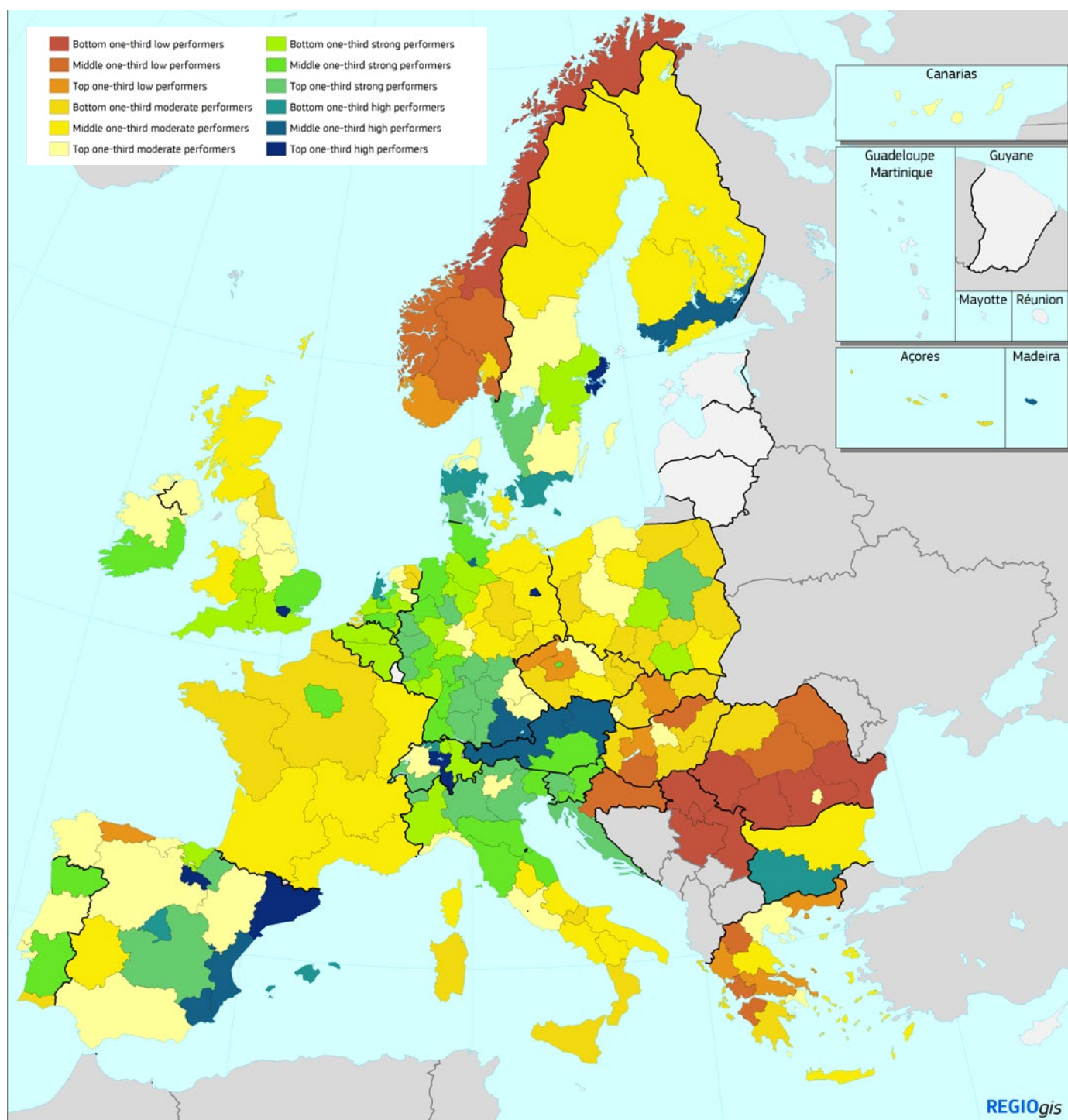


There are strong geographical performance differences in EPO patent applications. Regions in Denmark, Finland, Germany, the Netherlands, and Sweden are amongst the top one-third high performing group. Most of the Eastern European regions, and regions in Portugal, Spain, and the South of Italy perform relatively weak on EPO patent applications. Performance is spread in Norway, with Trøndelag (NO06), the best performing region in Norway, in the bottom one-third high performing group, and Nord-Norge (NO07), the lowest performing region in Norway, in the top one-third low performing group, but also in Germany, Italy, and the Netherlands, with the best and lowest performing regions eight performance sub-groups apart.

The top-20 regions with the highest scores are (in descending order): Etelä-Suomi (FI1C), Noord-Brabant (NL41), Mittelfranken (DE25), Stuttgart (DE11), Oberpfalz (DE23), Tübingen (DE14), Sydsverige (SE22), Freiburg (DE13), Karlsruhe (DE12), Rheinhessen-Pfalz (DEB3), Oberbayern (DE21), Midtjylland (DK04), Unterfranken (DE26), Östra Mellansverige (SE12), Schwaben (DE27), Nordwestschweiz (CH03), Stockholm (SE11), Detmold (DEA4), Centre-Est (FR7), and Oberfranken (DE24).

No data for regions in Serbia.

Trademark applications per billion regional GDP

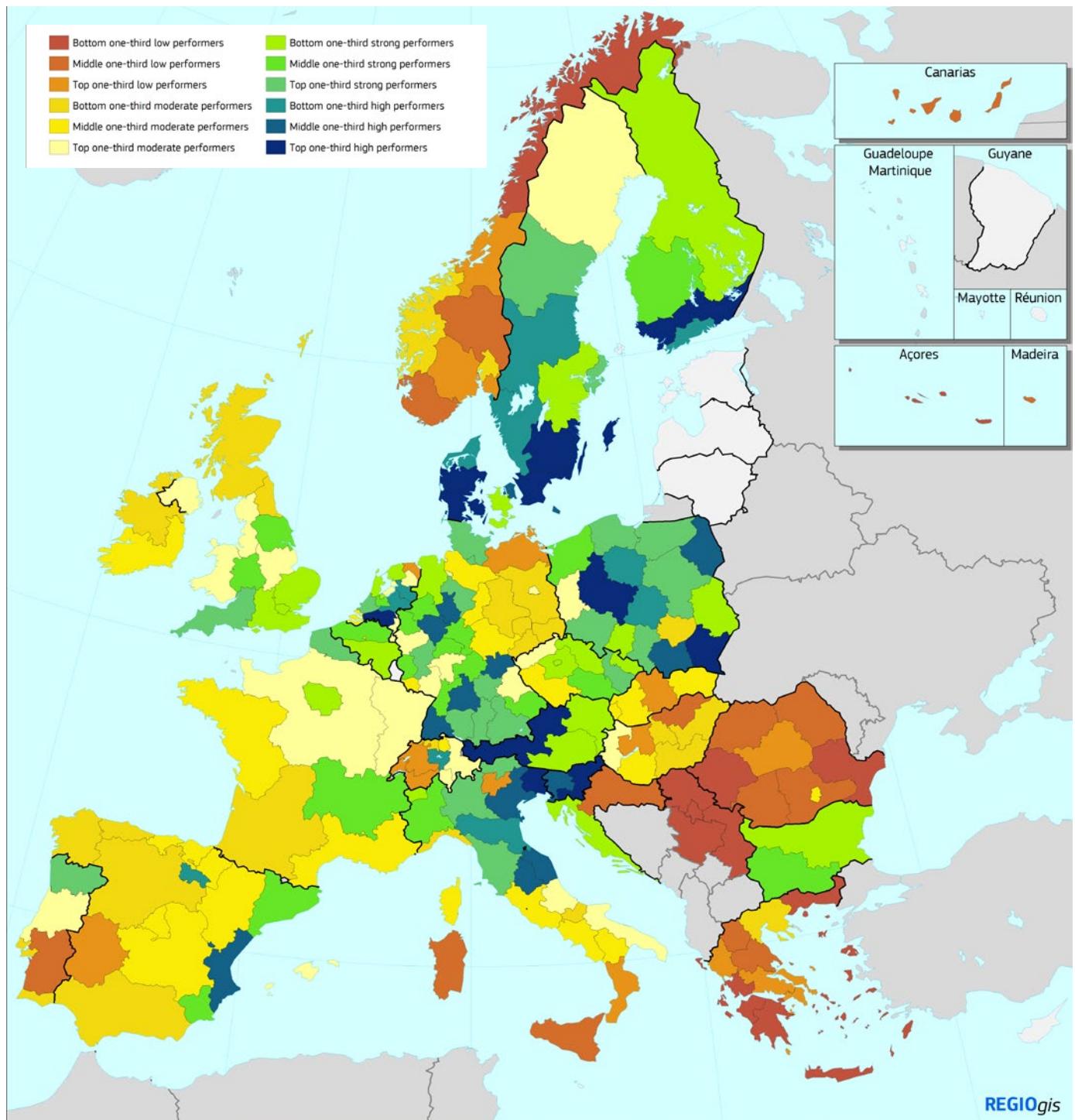


High performing regions on Trademark applications are located in 11 countries including Austria, Bulgaria, Denmark, Finland, Germany, the Netherlands, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. Performance is relatively weak in Hungary, Norway, Romania, and Serbia. Regional differences in Spain are rather high, with the best performing region, La Rioja (ES23), being part of the top one-third high performing group, and the lowest performing region, Principado de Asturias (ES12), being part of the top one-third low performers. Large differences in regional performance groups within one country are also observed in Germany, Portugal, Sweden, and the United Kingdom. Performance is also higher in capital regions compared to other regions in most countries.

The top-20 regions with the highest scores are (in descending order): Zentralschweiz (CH06), La Rioja (ES23) Berlin (DE30), Ticino (CH07), Cataluña (ES51), Stockholm (SE11), London (UK1), Región de Murcia (ES62), Hamburg (DE60), Região Autónoma da Madeira (PT30), Comunidad Valenciana (ES52), Westösterreich (AT3), Oberbayern (DE21), Etelä-Suomi (FI1C), Ostösterreich (AT1), Nordwestschweiz (CH03), Illes Balears (ES53), Noord-Holland (NL32), Sydsverige (SE22), and Midtjylland (DK04).

For Serbia, regional data are not available, and all regions have the same score as the country.

Design applications per billion regional GDP

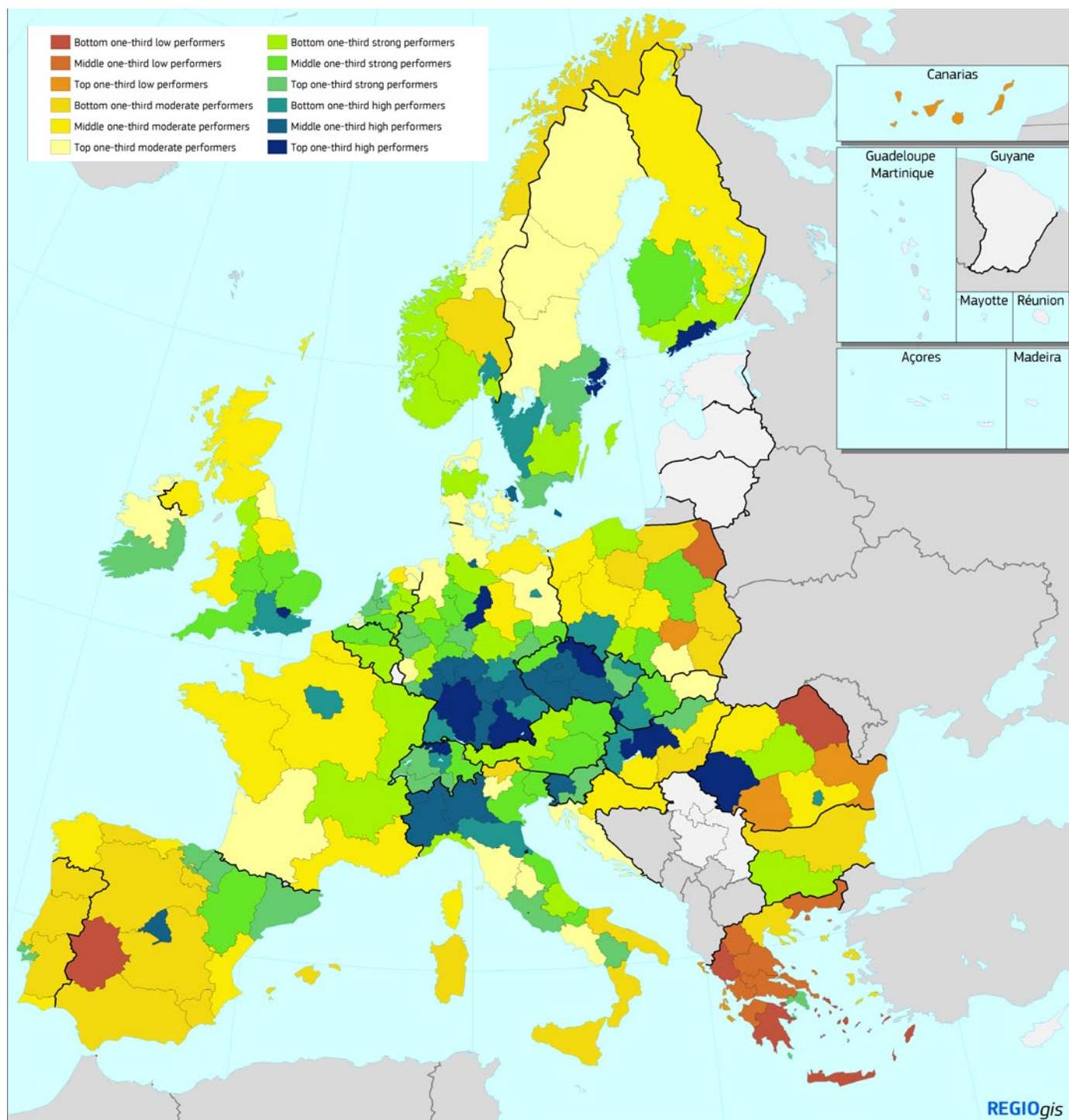


In Design applications, most regions belong to the strong and moderate performance groups, only 35 regions are in the group of high performing regions, of which 11 are in the top one-third high performers. High shares of high performing regions in Design applications are found in Austria, Denmark, Finland, Italy, Poland, Slovenia, and Sweden. High shares of low performing regions are found in Greece, Norway, and Portugal.

The top-20 regions with the highest scores are (in descending order): Småland med öarna (SE21), Friuli-Venezia Giulia (ITH4), Midtjylland (DK04), Podkarpackie (PL32), Wielkopolskie (PL41), Westösterreich (AT3), Noord-Brabant (NL41), Sydsverige (SE22), Syddanmark (DK03), Etelä-Suomi (FI1C), Vzhodna Slovenija (SI03), Veneto (ITH3), Umbria (ITI2), Freiburg (DE13), Detmold (DEA4), Stuttgart (DE11), Hovedstaden (DK01), Marche (ITI3), Podlaskie (PL34), and Comunidad Valenciana (ES52).

For Serbia, regional data are not available, and all regions have the same score as the country.

Employment in medium-high/high tech manufacturing and knowledge-intensive services as percentage of total workforce

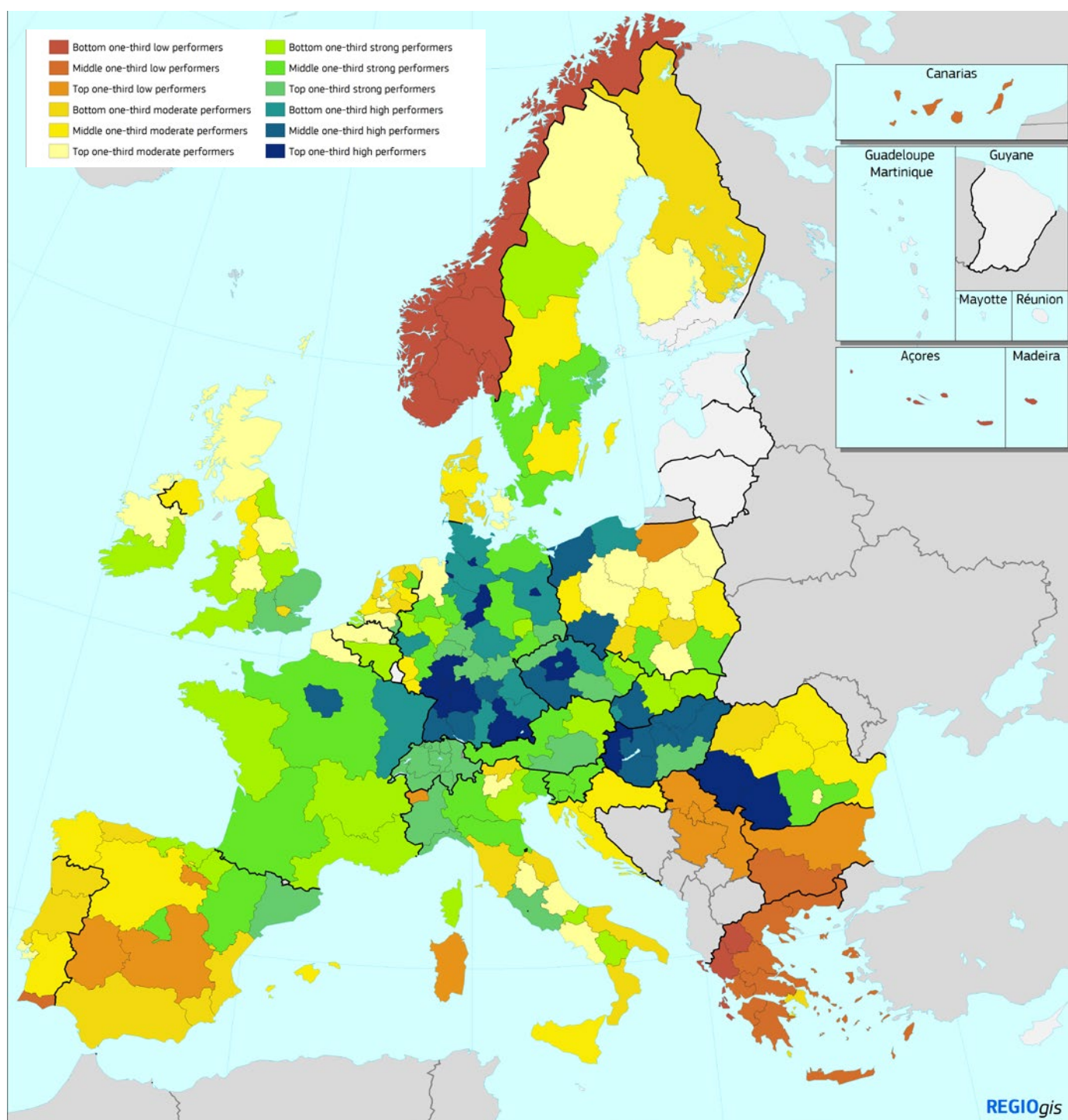


Employment in medium-high and high tech manufacturing and knowledge-intensive services is high in 47 regions in Europe. There are nine countries with at least one region that is part of the top one-third high performing regions, of which five regions in Germany and five region in other Innovation Leader countries, but also regions in Eastern Europe including Severovýchod (CZ05) in the Czech Republic, Közép-Magyarország (HU10) and Közép-Dunántúl (HU21) in Hungary, Vest (RO42) in Romania, and Bratislavský kraj (SK01) in Slovakia. In all countries, except Croatia, there is at least one region belonging to the strong performing group. Low performing regions are in only four countries, Poland, Romania, Spain and most notably in Greece.

The top-20 regions with the highest scores are (in descending order): Stuttgart (DE11), Stockholm (SE11), Bratislavský kraj (SK01), Oberbayern (DE21), Braunschweig (DE91), Vest (RO42), Tübingen (DE14), Karlsruhe (DE12), Helsinki-Uusimaa (FI1B), Severovýchod (CZ05), Zürich (CH04), Nordwestschweiz (CH03), London (UKI), Közép-Magyarország (HU10), Közép-Dunántúl (HU21), Hamburg (DE60), Lombardia (ITC4), Hovedstaden (DK01), Darmstadt (DE71), and Praha (CZ01).

No data for regions in Serbia.

Exports of medium-high/high technology intensive manufacturing as percentage of total exports

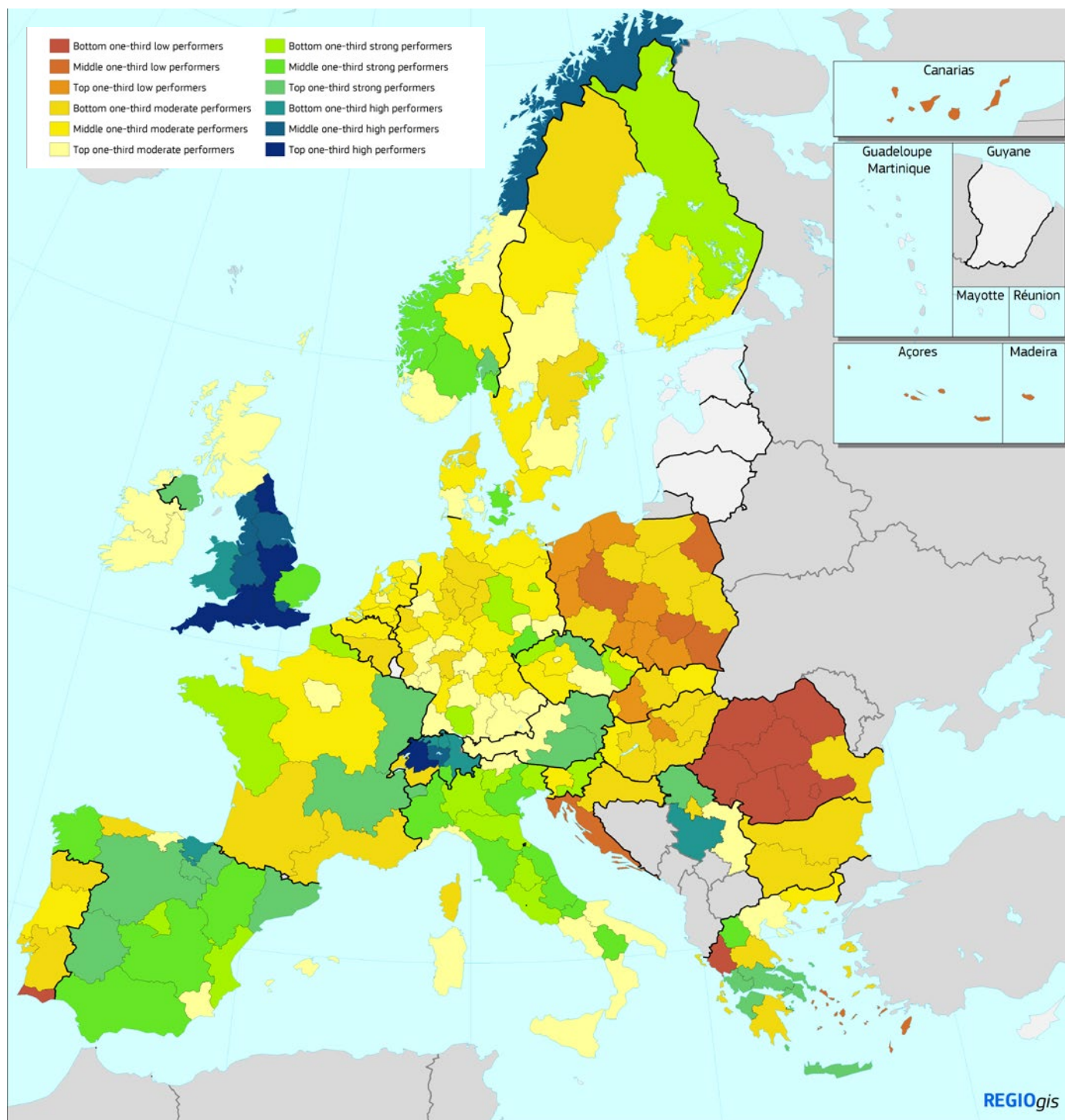


Exports of medium-high and high technology intensive manufacturing are high in large parts of the Czech Republic, Germany, Hungary, Poland, Romania, and Slovakia. Exports of medium-high and high technology-intensive manufacturing are low in Bulgaria, Greece (only Attiki (EL30) is part of the moderate performing regions), Norway, Portugal, and Serbia. All of the regions in Austria, the Czech Republic, Hungary, Slovakia, Slovenia and Switzerland are part of at least the strong performing regions. Regions in Southern European countries perform relatively weak.

The top-20 regions with the highest scores are (in descending order): Oberbayern (DE21), Braunschweig (DE91), Rheinhessen-Pfalz (DEB3), Berlin (DE30), Stuttgart (DE11), Bremen (DE50), Střední Čechy (CZ02), Nyugat-Dunántúl (HU22), Sud-Vest Oltenia (RO41), Karlsruhe (DE12), Hamburg (DE60), Darmstadt (DE71), Vest (RO42), Észak-Magyarország (HU31), Jihozápad (CZ03), Západoé Slovensko (SK02), Dolnoslaskie (PL51), Zachodniopomorskie (PL42), Freiburg (DE13), and Közép-Magyarország (HU10).

For Norway, Serbia and Switzerland, regional data are not available, and all regions have the same score as the country.

Sales of new-to-market and new-to-firm innovations in SMEs as percentage of turnover



There are only 17 regions which have a high performance on Sales of new-to-market and new-to-firm innovations in SMEs, and only five of these belong to the top one-third performing regions. Most high performing regions are in the United Kingdom. Most of the low performing regions are in Poland, Portugal, and Romania. In total, 122 regions perform at a moderate level, including all regions in Belgium, Bulgaria, Ireland, and the Netherlands.

The top-20 regions with the highest scores are (in descending order): South West (UKK), North East (UKC), Espace Mittelland (CH02), East Midlands(UKF), South East (UKJ), Yorkshire and The Humber (UKE), London (UKI), West Midlands (UKG), North West (UKD), Nord-Norge (NO07), Zentralschweiz (CH06), Wales (UKL), Ostschweiz (CH05), País Vasco (ES21), Zürich (CH04), Nordwestschweiz (CH03), Šumadija and Western Serbia (RS21), Northern Ireland(UKN), Severovýchod (CZ05), and Sterea Ellada (EL24).

5. RIS methodology

5.1 Missing data: imputations

For 220 regions and 18 indicators, full data availability would require data for 3,960 data cells per year. For the most recent year, however, 8.8% of data are not available. For the full five years including data for five waves of the CIS, full data availability would require data for 19,800 data cells. For several indicators, in particular the indicators using CIS data, regional data are missing for several years or even for the entire period considered. To increase data availability, a regionalisation technique has been used for the indicators using CIS data, followed by a set of imputation techniques for the remaining missing CIS data and the indicators not using CIS data.

5.1.1 CIS regionalisation technique

Whenever CIS data are missing for all regions, while the national-level aggregate for the country is available, a CIS “regionalisation” technique has been applied using country and regional-level data on employment and number of firms at the two-digit industry level, assuming that industry intensities at the country level also hold at the regional level. We explain the method for regionalising the CIS data by using the share of firms with product and process innovations as an example:

- Step 1: Calculate for each country Y the share of firms with product and process innovations for each industry I using the CIS 2014 country level data: PI_Y_I
- Step 2: Identify the employment share of industry I for region R : $EMPL_R_I$
- Step 3: Calculate the estimate for the share of firms with product and process innovations by multiplying $EMPL_R_I$ with PI_Y_I : $PI_EMPL_R_I$
- Step 4: Identify the share of local units (enterprises) of industry I for region R : $ENTR_R_I$
- Step 5: Calculate the estimate for the share of firms with product and process innovations by multiplying $ENTR_R_I$ with PI_Y_I : $PI_ENTR_R_I$
- Step 6: Calculate the average of $PI_EMPL_R_I$ and $PI_ENTR_R_I$ as the estimate for the regional share of product and process innovators: PI_R_I

5.1.2 General imputation techniques

The following techniques will be applied in the order as shown below.

1. At the country level, if data for both the previous and the following year are available, first the average of both years will be used $X_C^T = (X_C^{T-1} + X_C^{T+1}) / 2$, then, if the previous step is not possible, that of the previous year $X_C^T = X_C^{T-1}$, and finally, if the previous step is not possible, that of the following year $X_C^T = X_C^{T+1}$, where C denotes the country, T the current year, $T-1$ the previous year, and $T+1$ the following year. If data are not available for the previous and following year, missing data will not be imputed.
2. If regional data are available for the previous year, the ratio between the corresponding NUTS level and that at a higher aggregate level (NUTS 1 for NUTS 2 regions, country level for NUTS 1 regions) for the previous year is multiplied with the current value at the higher aggregate level: $X_R^T = (X_R^{T-1} / X_C^{T-1}) * X_C^T$, where R denotes the region, C the country (as the higher aggregate level), T the current year, and $T-1$ the previous year.
3. If regional data for the previous year are not available, the same procedure as in step 2 will be applied using the ratio between the corresponding NUTS level and that at a higher aggregate level (NUTS 1 for NUTS 2 regions, country level for NUTS 1 regions) for the following year: $X_R^T = (X_R^{T+1} / X_C^{T+1}) * X_C^T$, where R denotes the region, C the country (as the higher aggregate level), T the current year, and $T+1$ the following year.
4. If there are no regional data for neither the previous nor the following year, the higher-level aggregate will be used (NUTS 1 for NUTS 2 regions, country level for NUTS 1 regions), first that for the current year, and, if not available, that for the previous year, otherwise that for the following year: $X_R^T = X_C^T$ or $X_R^T = X_C^{T-1}$ or $X_R^T = X_C^{T+1}$, where R denotes the region, C the country (as the higher aggregate level), T the current year, $T-1$ the previous year, and $T+1$ the following year.
5. If no regional and no country-level data are available for the current, previous or following year, missing data will not be imputed.

5.2 Composite indicators

5.2.1 Normalising data

For the calculation of composite indicators, the individual indicators should ideally follow a normal distribution. Most of the RIS indicators are fractional indicators with values between 0% and 100%, and most of these do follow a normal distribution. Some indicators are unbound indicators, where values are not limited to an upper threshold. These indicators can have asymmetrical or skewed data distributions (where most regions show low performance levels and a few regions show exceptionally high performance levels). For all indicators, data have been transformed using a square root transformation if the degree of skewness of the raw data, a measure of the asymmetry of the distribution of the data, exceeds 1, such that the skewness of the transformed data is below 1.

For the following indicators the degree of skewness was above 1 and data have been transformed: Lifelong learning, International scientific co-publications, R&D expenditures in the public sector, R&D expenditures in the business sector, Non-R&D innovation expenditures, Public-private co-publications, EPO patent applications, Trademark applications, Design applications, and Sales of new-to-market and new-to-firm innovations.

Following this transformation, the data are normalised using the min-max procedure. The minimum score observed for all regions across all five observations is subtracted from the respective transformed score, which is then divided by the difference between the maximum and minimum scores observed for all regions across all five observations. The maximum normalised score is equal to 1 and the minimum normalised score is equal to 0.

5.2.2 Regional Innovation Index

Average innovation performance is measured using composite indicators. The Regional Innovation Index (RII) is calculated as the unweighted average of the normalised scores of the 18 indicators.

A comparison of the Regional Innovation Index at the country level with the Summary Innovation Index in the European Innovation Scoreboard shows that, due to using a more restricted set of indicators in the RIS, countries' performance relative to the EU average in the RIS is different from that in the European Innovation Scoreboard. The following correction is therefore applied to the composite indicator scores:

1. Calculate the ratios of the EIS 2017 Summary Innovation Index at country level with that of the EU: $EIS_index_CTR / EIS_index_EU$;
2. Calculate the ratios of the RIS 2017 Regional Innovation Index at country level with that of the EU: $RIS_index_CTR / RIS_index_EU$;
3. Calculate the correction factor by dividing the ratios 1) and 2).

These country correction factors are then multiplied with the RII for each region in the corresponding country to obtain final RII scores.

Relative performance scores are calculated by dividing the RII of the region by that of the EU and multiplying by 100. For trend performance, RIIs for all years are divided by that of the EU in 2011.

5.3 Performance group membership

For determining performance group membership, the Regional Innovation Scoreboard adopts the classification scheme used in the European Innovation Scoreboard. Innovation Leaders are all regions with a relative performance more than 20% above the EU average in 2017; Strong Innovators are all regions with a relative performance between 90% and 120% of the EU average in 2017; Moderate Innovators are all regions with a relative performance between 50% and 90% of the EU average in 2017; Modest Innovators are all regions with a relative performance below 50% of the EU average in 2017.

Annex 1: RIS indicators

Percentage population aged 30-34 having completed tertiary education	
Numerator	Number of persons in age class with some form of post-secondary education
Denominator	Total population between 30 and 34 years
Rationale	This is a general indicator of the supply of advanced skills. It is not limited to science and technical fields, because the adoption of innovations in many areas, in particular in the service sectors, depends on a wide range of skills. The indicator focuses on a narrow share of the population aged 30 to 34, and will relatively quickly reflect changes in educational policies leading to more tertiary graduates.
Included in EIS	No, proxy for EIS indicator measuring share of population aged 25-34 having completed tertiary education
Data source	Eurostat, regional statistics
Data availability	NUTS 2: 2007, 2009, 2011, 2013, 2015

Percentage population aged 25-64 participating in lifelong learning	
Numerator	Number of persons in private households aged between 25 and 64 years who have participated in the four weeks preceding the interview, in any education or training, whether or not relevant to the respondent's current or possible future job
Denominator	Total population aged between 25 and 64 years
Rationale	Lifelong learning encompasses all purposeful learning activity, whether formal, non-formal or informal, undertaken on an ongoing basis with the aim of improving knowledge, skills and competence. The intention or aim to learn is the critical point that distinguishes these activities from non-learning activities, such as cultural or sporting activities.
Included in EIS	Yes
Data source	Eurostat, regional statistics
Data availability	NUTS 2: 2007, 2009, 2011, 2013, 2015

International scientific co-publications per million population	
Numerator	Number of scientific publications with at least one co-author based abroad
Denominator	Total population
Rationale	International scientific co-publications are a proxy for the quality of scientific research as collaboration increases scientific productivity.
Included in EIS	Yes
Data source	Numerator: Web of Science *. Denominator: Eurostat
Data availability	NUTS 2: 2008, 2010, 2012, 2014, 2016

* Data provided by CWTS (Leiden University) as part of a contract with European Commission (DG Research and Innovation).

Scientific publications among the top-10% most cited publications worldwide as percentage of total scientific publications of the region	
Numerator	Number of scientific publications among the top-10% most cited publications worldwide
Denominator	Total number of scientific publications
Rationale	The indicator is a measure for the efficiency of the research system as highly cited publications are assumed to be of higher quality. There could be a bias towards small or English speaking countries given the coverage of Scopus' publication data.
Included in EIS	Yes
Data source	Web of Science *
Data availability	NUTS 2: 2006, 2008, 2010, 2012, 2014

* Data provided by CWTS (Leiden University) as part of a contract with European Commission (DG Research and Innovation).

R&D expenditures in the public sector as percentage of GDP

Numerator	All R&D expenditures in the government sector (GOVERD) and the higher education sector (HERD)
Denominator	Regional Gross Domestic Product
Rationale	R&D expenditure represents one of the major drivers of economic growth in a knowledge-based economy. As such, trends in the R&D expenditure indicator provide key indications of the future competitiveness and wealth of a region. Research and development spending is essential for making the transition to a knowledge-based economy as well as for improving production technologies and stimulating growth.
Included in EIS	Yes
Data source	Eurostat, regional statistics
Data availability	NUTS 2 , 2006, 2008, 2010, 2012, 2014

R&D expenditures in the business sector as percentage of GDP

Numerator	All R&D expenditures in the business sector (BERD)
Denominator	Regional Gross Domestic Product
Rationale	The indicator captures the formal creation of new knowledge within firms. It is particularly important in the science-based sector (pharmaceuticals, chemicals and some areas of electronics), where most new knowledge is created in or near R&D laboratories.
Included in EIS	Yes
Data source	Eurostat, regional statistics
Data availability	NUTS 2 , 2006, 2008, 2010, 2012, 2014

Non-R&D innovation expenditures in SMEs as percentage of turnover

Numerator	Sum of total innovation expenditure for SMEs, excluding intramural and extramural R&D expenditures
Denominator	Total turnover for SMEs
Rationale	This indicator measures non-R&D innovation expenditure as percentage of total turnover. Several of the components of innovation expenditure, such as investment in equipment and machinery and the acquisition of patents and licenses, measure the diffusion of new production technology and ideas.
Included in EIS	No, proxy for EIS indicator including all enterprises
Data source	Community Innovation Survey: Eurostat in collaboration with National Statistical Offices
Data availability	NUTS 1 : • 2006-2008-2010-2012-2014: BE, BG • 2008-2010-2012-2014: AT, FR; NUTS 2 : • 2006-2008-2010-2012-2014: CZ, ES, PL, PT, RO, SI, SK • 2008-2010-2012-2014: HU, NO • 2008-2010-2012: SE • 2008-2010-2012-2014: IT • 2010-2012-2014: HR • 2012-2014: DE, EL • 2014: CH, RS

SMEs introducing product or process innovations as percentage of SMEs

Numerator	Number of SMEs that introduced a new product or a new process to one of their markets
Denominator	Total number of SMEs
Rationale	Technological innovation as measured by the introduction of new products (goods or services) and processes is key to innovation in manufacturing activities. Higher shares of technological innovators should reflect a higher level of innovation activities.
Included in EIS	Yes
Data source	Community Innovation Survey: Eurostat in collaboration with National Statistical Offices
Data availability	NUTS 1 : • 2006-2008-2010-2012-2014: AT, BE, BG, FR • 2006-2012-2014: UK; NUTS 2 : • 2006-2008-2010-2012-2014: CZ, ES, FI, PL, PT, RO, SI, SK, NO • 2008-2010-2012-2014: IT • 2008-2012-2014: EL • 2008-2010-2012-2014: HU • 2008-2010-2012: SE • 2010-2012-2014: HR • 2012-2014: DE • 2014: CH, RS

SMEs introducing marketing or organisational innovations as percentage of SMEs

Numerator	Number of SMEs that introduced a new marketing innovation and/or organisational innovation to one of their markets
Denominator	Total number of SMEs
Rationale	Many firms, in particular in the service sectors, innovate through non-technological forms of innovation. Examples of these are organisational innovations. This indicator tries to capture the extent to which SMEs innovate through non-technological innovation.
Included in EIS	Yes
Data source	Community Innovation Survey: Eurostat in collaboration with National Statistical Offices
Data availability	NUTS 1 : • 2006-2008-2010-2012-2014: AT, BE, BG, FR • 2006-2012-2014: UK; NUTS 2 : • 2006-2008-2010-2012-2014: CZ, ES, FI, PL, PT, RO, SI, SK, NO • 2008-2010-2012-2014: IT • 2006-2012-2014: EL • 2006-2008-2010-2012-2014: HU • 2008-2010-2012: SE • 2010-2012-2014: HR • 2012-2014: DE • 2014: CH, RS

SMEs innovating in-house as percentage of SMEs

Numerator	Number of SMEs with in-house innovation activities. Innovative firms with in-house innovation activities have introduced a new product or new process either in-house or in combination with other firms. The indicator does not include new products or processes developed by other firms.
Denominator	Total number of SMEs
Rationale	This indicator measures the degree to which SMEs that have introduced any new or significantly improved products or production processes have innovated in-house. The indicator is limited to SMEs, because almost all large firms innovate.
Included in EIS	Yes
Data source	Community Innovation Survey: Eurostat in collaboration with National Statistical Offices
Data availability	NUTS 1: • 2006-2008-2010-2012-2014: AT, BE, BG • 2006-2012-2014: UK • 2008-2012-2014: FR; NUTS 2: • 2006-2008-2010-2012-2014: CZ, FI, PL, PT, RO, SI, SK, NO • 2006-2008-2012-2014: ES • 2008-2010-2012-2014: IT • 2006-2012-2014: EL • 2006-2008-2010-2012-2014: HU • 2008-2010-2012-2014: SE • 2010-2012-2014: HR • 2012-2014: DE • 2014: CH, RS

Innovative SMEs collaborating with others as percentage of SMEs

Numerator	Number of SMEs with innovation co-operation activities. Firms with co-operation activities are those that have had any co-operation agreements on innovation activities with other enterprises or institutions.
Denominator	Total number of SMEs
Rationale	This indicator measures the degree to which SMEs are involved in innovation co-operation. Complex innovations often depend on companies' ability to draw on diverse sources of information and knowledge, or to collaborate on the development of an innovation. This indicator measures the flow of knowledge between public research institutions and firms, and between firms and other firms. The indicator is limited to SMEs, because almost all large firms are involved in innovation co-operation.
Included in EIS	Yes
Data source	Community Innovation Survey: Eurostat in collaboration with National Statistical Offices
Data availability	NUTS 1: • 2006-2008-2010-2012-2014: AT, BE, BG, FR • 2006-2010-2012-2014: UK • 2008-2010-2012-2014: FR; NUTS 2: • 2006-2008-2010-2012-2014: CZ, ES, FI, PL, PT, RO, SI, SK, NO • 2008-2010-2012-2014: IT • 2006-2012-2014: EL • 2006-2008-2010-2012-2014: HU • 2008-2010-2012: SE • 2010-2012-2014: HR • 2012-2014: DE • 2014: CH, RS

Public-private co-publications per million population

Numerator	Number of public-private co-authored research publications. The definition of the "private sector" excludes the private medical and health sector. Publications are assigned to the country/countries in which the business companies or other private sector organisations are located.
Denominator	Total population
Rationale	This indicator captures public-private research linkages and active collaboration activities between business sector researchers and public sector researchers resulting in academic publications.
Included in EIS	Yes
Data source	Numerator: Web of Science *. Denominator: Eurostat
Data availability	NUTS 2: 2008, 2009, 2011, 2013, 2015

* Data provided by CWTS (Leiden University) as part of a contract with European Commission (DG Research and Innovation).

EPO patent applications per billion regional GDP

Numerator	Number of patents applied for at the European Patent Office (EPO), by year of filing. The regional distribution of the patent applications is assigned according to the address of the inventor.
Denominator	Gross Domestic Product in Purchasing Power Standard
Rationale	The capacity of firms to develop new products determines their competitive advantage. One indicator of the rate of new product innovation is the number of patents. This indicator measures the number of patent applications at the European Patent Office.
Included in EIS	No, EIS uses PCT patent applications
Data source	Eurostat
Data availability	NUTS 2: 2003, 2005, 2007, 2009, 2011

Trademark applications per billion regional GDP

Numerator	Number of trademarks applied for at EUIPO
Denominator	Gross Domestic Product in Purchasing Power Standard
Rationale	Trademarks are an important innovation indicator, especially for the service sector. The Community trademark gives its proprietor a uniform right applicable in all Member States of the European Union through a single procedure which simplifies trademark policies at European level. It fulfils the three essential functions of a trademark: it identifies the origin of goods and services, guarantees consistent quality through evidence of the company's commitment vis-à-vis the consumer, and is a form of communication, a basis for publicity and advertising.
Included in EIS	No, proxy for EIS indicator covering both EUIPO and WIPO (Madrid Protocol) applications
Data source	Numerator: European Union Intellectual Property Office (EUIPO). Denominator: Eurostat
Data availability	NUTS 2: 2006, 2008, 2010, 2012, 2014

Design applications per billion regional GDP

Numerator	Number of designs applied for at EUIPO
Denominator	Gross Domestic Product in Purchasing Power Standard
Rationale	A design is the outward appearance of a product or part of it resulting from the lines, contours, colours, shape, texture, materials and/or its ornamentation. A product can be any industrial or handicraft item including packaging, graphic symbols and typographic typefaces but excluding computer programs. It also includes products that are composed of multiple components, which may be disassembled and reassembled. Community design protection is directly enforceable in each Member State and it provides both the option of an unregistered and a registered Community design right for one area encompassing all Member States.
Included in EIS	No, proxy for EIS indicator covering individual design applications
Data source	Numerator: European Union Intellectual Property Office (EUIPO). Denominator: Eurostat
Data availability	NUTS 2: 2006, 2008, 2010, 2012, 2014

Employment in medium-high/high tech manufacturing and knowledge-intensive services as percentage of total workforce

Numerator	Number of employed persons in the medium-high and high tech manufacturing sectors include Chemicals (NACE24), Machinery (NACE29), Office equipment (NACE30), Electrical equipment (NACE31), Telecommunications and related equipment (NACE32), Precision instruments (NACE33), Automobiles (NACE34) and Aerospace and other transport (NACE35). Number of employed persons in the knowledge-intensive services sectors include Water transport (NACE 61), Air transport (NACE 62), Post and telecommunications (NACE64), Financial intermediation (NACE 65), Insurance and pension funding (NACE 66), Activities auxiliary to financial intermediation (NACE 67), Real estate activities (NACE 70), Renting of machinery and equipment (NACE 71), Computer and related activities (NACE72), Research and development (NACE73), and Other business activities (NACE 74)
Denominator	Total workforce including all manufacturing and service sectors
Rationale	The share of employment in high technology manufacturing sectors is an indicator of the manufacturing economy that is based on continual innovation through creative, inventive activity. The use of total employment gives a better indicator than using the share of manufacturing employment alone, since the latter will be affected by the relative decline of manufacturing in some countries. Knowledge-intensive services can be provided directly to consumers, such as telecommunications, and provide inputs to the innovative activities of other firms in all sectors of the economy. The latter can increase productivity throughout the economy and support the diffusion of a range of innovations, in particular those based on ICT.
Included in EIS	No, proxy for EIS indicator on employment in knowledge-intensive activities
Data source	Eurostat
Data availability	NUTS 2: 2009, 2011, 2013, 2015

Exports of medium-high/high tech technology-intensive manufacturing as percentage of total manufacturing exports

Numerator	Sum of exports in Chemicals and chemical products (NACE Rev. 1.1 category 24), Machinery and equipment (NACE Rev. 1.1 category 29), Office machinery and computers (NACE Rev. 1.1 category 30), Electrical machinery and apparatus (NACE Rev. 1.1 category 31), Radio, television and communication equipment (NACE Rev. 1.1 category 32), Medical, precision and optical instruments (NACE Rev. 1.1 category 3), Motor vehicles, trailers and semi-trailers, and Other transport equipment (NACE Rev. 1.1 category 34)
Denominator	Total manufacturing exports
Rationale	The indicator measures the technological competitiveness of a region, i.e. its ability to commercialise the results of research and development (R&D) and innovation in the international markets. It also reflects product specialisation. Creating, exploiting and commercialising new technologies are vital for the competitiveness of a region in the modern economy. Medium and high technology products are key drivers of economic growth, productivity and welfare, and are generally a source of high value added and well-paid employment.
Included in EIS	No, proxy for EIS indicator on exports in medium/high tech products
Data source	Study for European Commission, DG GROW
Data availability	NUTS 2: 2003, 2005, 2007, 2009, 2011

Sales of new-to-market and new-to-firm innovations in SMEs as percentage of turnover	
Numerator	Sum of total turnover of new or significantly improved products for SMEs
Denominator	Total turnover for SMEs
Rationale	This indicator measures the turnover of new or significantly improved products and includes both products which are only new to the firm and products which are also new to the market. The indicator thus captures both the creation of state-of-the-art technologies (new to market products) and the diffusion of these technologies (new to firm products).
Included in EIS	No, proxy for EIS indicator including all enterprises
Data source	Community Innovation Survey: Eurostat in collaboration with National Statistical Offices
Data availability	NUTS 1: • 2006-2008-2010-2012-2014: BE, BG • 2008-2010-2012-2014: FR • 2008-2010-2012-2014: AT; NUTS 2: • 2006-2008-2010-2012-2014: CZ, ES, PL, RO, SI, SK, NO • 2006-2012-2014: EL • 2006-2008-2010-2012-2014: HU, PT • 2008-2010-2012: SE • 2010-2012-2014: HR • 2012-2014: DE • 2014: CH, RS

Annex 2: Regional innovation performance groups

		"2011" - score relative to EU 2011	"2017" - score relative to EU 2011	"2017" - score relative to EU 2017	Performance group
EU28	EU28	101.5	102.6	100.0	
BE	Belgium				
BE1	Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest	125.2	117.8	114.8	Strong +
BE2	Vlaams Gewest	124.4	126.5	123.3	Leader -
BE3	Région Wallonne	112.8	108.8	106.0	Strong
BG	Bulgaria				
BG3	Severna i iztochna Bulgaria	35.4	40.3	39.3	Modest
BG4	Yugozapadna i yuzhna tsentralna Bulgaria	44.3	52.6	51.3	Moderate -
CZ	Czech Republic				
CZ01	Praha	105.6	101.6	99.0	Strong -
CZ02	Střední Čechy	85.9	74.9	72.9	Moderate +
CZ03	Jihozápad	76.5	76.9	75.0	Moderate +
CZ04	Severozápad	73.0	59.0	57.5	Moderate -
CZ05	Severovýchod	89.2	86.9	84.7	Moderate +
CZ06	Jihovýchod	86.8	90.8	88.5	Moderate +
CZ07	Střední Morava	86.6	82.4	80.3	Moderate +
CZ08	Moravskoslezsko	76.6	72.3	70.4	Moderate
DK	Denmark				
DK01	Hovedstaden	170.0	159.0	154.9	Leader +
DK02	Sjælland	127.7	116.7	113.7	Strong +
DK03	Syddanmark	131.2	120.4	117.3	Strong +
DK04	Midtjylland	145.0	136.8	133.3	Leader
DK05	Nordjylland	124.3	111.6	108.8	Strong
DE	Germany				
DE11	Stuttgart	147.4	143.2	139.6	Leader +
DE12	Karlsruhe	152.0	142.4	138.8	Leader
DE13	Freiburg	141.9	133.5	130.1	Leader
DE14	Tübingen	148.3	145.6	141.9	Leader +
DE21	Oberbayern	154.4	146.9	143.2	Leader +
DE22	Niederbayern	111.4	93.4	91.0	Strong -
DE23	Oberpfalz	126.5	109.6	106.8	Strong
DE24	Oberfranken	127.2	114.1	111.2	Strong +
DE25	Mittelfranken	139.4	132.5	129.1	Leader
DE26	Unterfranken	132.6	124.4	121.2	Leader -
DE27	Schwaben	119.2	114.7	111.7	Strong +
DE30	Berlin	142.1	142.7	139.1	Leader
DE40	Brandenburg	112.8	102.4	99.8	Strong -
DE50	Bremen	123.8	123.3	120.2	Leader -
DE60	Hamburg	132.9	126.9	123.7	Leader -
DE71	Darmstadt	139.3	127.2	123.9	Leader -
DE72	Gießen	130.1	119.0	116.0	Strong +
DE73	Kassel	110.9	105.7	103.0	Strong
DE80	Mecklenburg-Vorpommern	106.6	102.1	99.5	Strong -
DE91	Braunschweig	143.3	132.8	129.4	Leader

		"2011" - score relative to EU 2011	"2017" - score relative to EU 2011	"2017" - score relative to EU 2017	Performance group
DE92	Hannover	122.6	117.3	114.3	Strong +
DE93	Lüneburg	104.5	101.9	99.3	Strong -
DE94	Weser-Ems	102.7	95.6	93.2	Strong -
DEA1	Düsseldorf	121.8	110.4	107.6	Strong
DEA2	Köln	134.0	132.2	128.8	Leader
DEA3	Münster	117.3	111.1	108.2	Strong
DEA4	Detmold	121.0	112.6	109.7	Strong
DEA5	Arnsberg	118.8	114.6	111.7	Strong +
DEB1	Koblenz	107.1	104.8	102.2	Strong -
DEB2	Trier	104.7	101.7	99.1	Strong -
DEB3	Rheinhausen-Pfalz	141.4	126.0	122.8	Leader -
DECO	Saarland	116.5	105.2	102.5	Strong
DED2	Dresden	133.8	121.8	118.7	Strong +
DED4	Chemnitz	111.4	103.0	100.4	Strong -
DED5	Leipzig	123.8	120.1	117.0	Strong +
DEEO	Sachsen-Anhalt	106.3	93.6	91.2	Strong -
DEFO	Schleswig-Holstein	119.3	112.4	109.5	Strong
DEGO	Thüringen	119.7	110.2	107.4	Strong
IE	Ireland				
IE01	Border, Midland and Western	112.2	106.9	104.2	Strong
IE02	Southern and Eastern	119.6	118.6	115.6	Strong +
GR	Greece				
EL51	Anatoliki Makedonia, Thraki	50.1	53.4	52.0	Moderate -
EL52	Kentriki Makedonia	67.2	67.3	65.6	Moderate
EL53	Dytiki Makedonia	45.9	62.9	61.3	Moderate
EL54	Ipeiros	56.1	54.3	52.9	Moderate -
EL61	Thessalia	60.6	59.2	57.7	Moderate -
EL62	Ionia Nisia	43.0	42.9	41.8	Modest
EL63	Dytiki Ellada	65.3	64.8	63.1	Moderate
EL64	Stereia Ellada	54.3	53.8	52.4	Moderate -
EL65	Peloponnisos	53.0	48.0	46.8	Modest +
EL3	Attiki	74.9	76.9	74.9	Moderate +
EL41	Voreio Aigaio	43.1	54.6	53.2	Moderate -
EL42	Notio Aigaio	52.1	48.5	47.2	Modest +
EL43	Kriti	72.6	71.4	69.5	Moderate
ES	Spain				
ES11	Galicia	77.1	73.5	71.6	Moderate
ES12	Principado de Asturias	71.3	68.5	66.7	Moderate
ES13	Cantabria	77.9	73.8	71.9	Moderate +
ES21	País Vasco	95.1	93.9	91.4	Strong -
ES22	Comunidad Foral de Navarra	97.1	87.8	85.5	Moderate +
ES23	La Rioja	82.8	77.3	75.3	Moderate +
ES24	Aragón	87.8	80.1	78.0	Moderate +
ES30	Comunidad de Madrid	90.9	88.2	85.9	Moderate +
ES41	Castilla y León	76.1	68.3	66.6	Moderate
ES42	Castilla-la Mancha	65.6	61.4	59.8	Moderate
ES43	Extremadura	55.9	56.8	55.3	Moderate -
ES51	Cataluña	92.7	90.9	88.5	Moderate +
ES52	Comunidad Valenciana	81.3	78.5	76.5	Moderate +

		"2011" - score relative to EU 2011	"2017" - score relative to EU 2011	"2017" - score relative to EU 2017	Performance group
ES53	Illes Balears	58.8	60.5	59.0	Moderate
ES61	Andalucía	66.5	66.8	65.1	Moderate
ES62	Región de Murcia	73.1	67.9	66.2	Moderate
ES63	Ciudad Autónoma de Ceuta	n/a	n/a	n/a	n/a
ES64	Ciudad Autónoma de Melilla	n/a	n/a	n/a	n/a
ES70	Canarias	54.2	49.1	47.9	Modest +
HR	Croatia				
HR03	Jadranska Hrvatska	51.0	52.9	51.5	Moderate -
HR04	Kontinentalna Hrvatska	50.8	54.4	53.0	Moderate -
FR	France				
FR1	Île de France	130.1	130.8	127.4	Leader -
FR2	Bassin Parisien	95.7	97.3	94.8	Strong -
FR3	Nord - Pas-de-Calais	97.7	101.4	98.8	Strong -
FR4	Est	107.7	110.9	108.0	Strong
FR5	Ouest	99.8	104.5	101.8	Strong -
FR6	Sud-Ouest	111.1	114.3	111.3	Strong +
FR7	Centre-Est	120.0	125.9	122.7	Leader -
FR8	Méditerranée	105.5	105.7	103.0	Strong
FRA	French overseas departments	n/a	n/a	n/a	n/a
IT	Italy				
ITC1	Piemonte	86.6	81.9	79.8	Moderate +
ITC2	Valle d'Aosta/Vallée d'Aoste	60.1	60.5	59.0	Moderate
ITC3	Liguria	72.4	71.4	69.6	Moderate
ITC4	Lombardia	85.2	81.6	79.6	Moderate +
ITH1	Provincia Autonoma Bolzano/Bozen	74.7	71.2	69.4	Moderate
ITH2	Provincia Autonoma Trento	80.1	80.4	78.4	Moderate +
ITH3	Veneto	83.2	81.5	79.4	Moderate +
ITH4	Friuli-Venezia Giulia	94.2	90.2	87.8	Moderate +
ITH5	Emilia-Romagna	87.4	82.0	79.9	Moderate +
ITI1	Toscana	76.0	77.5	75.5	Moderate +
ITI2	Umbria	73.9	76.2	74.3	Moderate +
ITI3	Marche	71.0	71.2	69.4	Moderate
ITI4	Lazio	74.8	75.5	73.6	Moderate +
ITF1	Abruzzo	72.2	66.2	64.5	Moderate
ITF2	Molise	60.5	62.6	61.0	Moderate
ITF3	Campania	66.5	59.3	57.8	Moderate -
ITF4	Puglia	56.8	60.1	58.5	Moderate -
ITF5	Basilicata	61.0	59.4	57.9	Moderate -
ITF6	Calabria	57.2	59.3	57.8	Moderate -
ITG1	Sicilia	55.4	52.7	51.3	Moderate -
ITG2	Sardegna	57.0	53.7	52.4	Moderate -
HU	Hungary				
HU10	Közép-Magyarország	80.5	79.6	77.6	Moderate +
HU21	Közép-Dunántúl	59.9	62.9	61.3	Moderate
HU22	Nyugat-Dunántúl	56.8	59.8	58.2	Moderate -
HU23	Dél-Dunántúl	55.8	55.0	53.6	Moderate -
HU31	Észak-Magyarország	54.6	52.6	51.2	Moderate -
HU32	Észak-Alföld	54.9	59.1	57.6	Moderate -
HU33	Dél-Alföld	57.4	62.3	60.7	Moderate

		"2011" - score relative to EU 2011	"2017" - score relative to EU 2011	"2017" - score relative to EU 2017	Performance group
NL	Netherlands				
NL11	Groningen	126.9	128.3	125.0	Leader -
NL12	Friesland	106.7	97.5	95.0	Strong -
NL13	Drenthe	104.0	109.0	106.2	Strong
NL21	Overijssel	122.9	121.1	118.0	Strong +
NL22	Gelderland	130.7	129.4	126.1	Leader -
NL23	Flevoland	117.4	112.5	109.6	Strong
NL31	Utrecht	138.2	140.2	136.6	Leader
NL32	Noord-Holland	130.0	130.9	127.5	Leader -
NL33	Zuid-Holland	129.1	130.6	127.3	Leader -
NL34	Zeeland	106.0	106.3	103.6	Strong
NL41	Noord-Brabant	137.0	133.7	130.3	Leader
NL42	Limburg	130.1	127.3	124.0	Leader -
AT	Austria				
AT1	Ostösterreich	119.6	122.4	119.3	Strong +
AT2	Südösterreich	111.9	122.5	119.4	Strong +
AT3	Westösterreich	112.8	118.5	115.5	Strong +
PL	Poland				
PL11	Lódzkie	47.3	51.7	50.4	Moderate -
PL12	Mazowieckie	59.7	65.3	63.6	Moderate
PL21	Małopolskie	55.4	58.7	57.2	Moderate -
PL22	Śląskie	52.3	51.6	50.3	Moderate -
PL31	Lubelskie	44.2	48.7	47.4	Modest +
PL32	Podkarpackie	51.7	53.2	51.8	Moderate -
PL33	Świętokrzyskie	41.0	37.8	36.8	Modest -
PL34	Podlaskie	40.2	46.7	45.5	Modest
PL41	Wielkopolskie	48.8	50.6	49.3	Modest +
PL42	Zachodniopomorskie	48.0	48.2	47.0	Modest +
PL43	Lubuskie	39.2	42.2	41.1	Modest
PL51	Dolnośląskie	56.7	58.4	56.9	Moderate -
PL52	Opolskie	43.0	44.9	43.7	Modest
PL61	Kujawsko-Pomorskie	45.6	47.5	46.3	Modest
PL62	Warmińsko-Mazurskie	38.9	39.9	38.9	Modest
PL63	Pomorskie	53.3	56.5	55.0	Moderate -
PT	Portugal				
PT11	Norte	79.1	81.7	79.6	Moderate +
PT15	Algarve	63.5	54.9	53.5	Moderate -
PT16	Centro	84.2	87.2	85.0	Moderate +
PT17	Lisboa	98.2	90.6	88.2	Moderate +
PT18	Alentejo	70.0	70.2	68.4	Moderate
PT20	Região Autónoma dos Açores	53.4	54.2	52.9	Moderate -
PT30	Região Autónoma da Madeira	55.2	56.4	55.0	Moderate -
RO	Romania				
R011	Nord-Vest	40.9	29.1	28.4	Modest -
R012	Centru	37.1	31.5	30.7	Modest -
R021	Nord-Est	41.6	23.7	23.0	Modest -
R022	Sud-Est	38.0	27.1	26.4	Modest -
R031	Sud - Muntenia	40.1	27.6	26.9	Modest -

		"2011" - score relative to EU 2011	"2017" - score relative to EU 2011	"2017" - score relative to EU 2017	Performance group
R032	Bucuresti - Ilfov	60.5	48.5	47.2	Modest +
R041	Sud-Vest Oltenia	34.3	23.9	23.3	Modest -
R042	Vest	39.9	35.9	35.0	Modest -
SI	Slovenia				
SI03	Vzhodna Slovenija	88.8	88.9	86.6	Moderate +
SI04	Zahodna Slovenija	107.4	104.7	102.0	Strong -
SK	Slovakia				
SK01	Bratislavský kraj	107.2	106.9	104.1	Strong
SK02	Západné Slovensko	73.7	71.5	69.6	Moderate
SK03	Stredné Slovensko	71.1	67.8	66.1	Moderate
SK04	Východné Slovensko	65.1	73.7	71.9	Moderate +
FI	Finland				
FI1B	Helsinki-Uusimaa	135.8	132.0	128.6	Leader -
FI1C	Etelä-Suomi	148.2	143.2	139.5	Leader
FI19	Länsi-Suomi	128.6	125.4	122.2	Leader +
FI1D	Pohjois- ja Itä-Suomi	128.8	118.2	115.2	Strong +
FI20	Åland	n/a	n/a	n/a	n/a
SE	Sweden				
SE11	Stockholm	166.3	169.4	165.1	Leader +
SE12	Östra Mellansverige	151.7	150.1	146.3	Leader +
SE21	Småland med öarna	121.5	113.2	110.3	Strong +
SE22	Sydsverige	154.8	145.6	141.8	Leader +
SE23	Västsverige	147.4	142.0	138.3	Leader
SE31	Norra Mellansverige	113.3	105.4	102.7	Strong
SE32	Mellersta Norrland	117.1	104.3	101.6	Strong -
SE33	Övre Norrland	128.3	125.0	121.8	Leader -
UK	United Kingdom				
UKC	North East	117.7	129.9	126.6	Leader -
UKD	North West	120.7	126.2	123.0	Leader -
UKE	Yorkshire and The Humber	113.9	133.6	130.2	Leader
UKF	East Midlands	124.7	137.7	134.2	Leader
UKG	West Midlands	116.2	132.0	128.6	Leader
UKH	East of England	137.9	142.7	139.1	Leader
UKI	London	131.9	144.8	141.1	Leader +
UKJ	South East	140.0	152.1	148.2	Leader +
UKK	South West	129.6	135.5	132.1	Leader
UKL	Wales	110.3	122.5	119.4	Strong +
UKM	Scotland	122.8	129.2	125.9	Leader -
UKN	Northern Ireland	102.2	112.3	109.5	Strong
CH	Switzerland				
CH01	Région lémanique	147.4	151.7	147.9	Leader +
CH02	Espace Mittelland	143.1	146.8	143.0	Leader +
CH03	Nordwestschweiz	163.2	170.8	166.4	Leader +
CH04	Zürich	174.2	183.0	178.3	Leader +
CH05	Ostschweiz	144.1	153.6	149.6	Leader +
CH06	Zentralschweiz	152.5	159.1	155.0	Leader +
CH07	Ticino	144.6	156.5	152.5	Leader +
NO	Norway				
N001	Oslo og Akershus	125.1	134.2	130.8	Leader

		"2011" - score relative to EU 2011	"2017" - score relative to EU 2011	"2017" - score relative to EU 2017	Performance group
N002	Hedmark og Oppland	77.5	93.2	90.8	Strong -
N003	Sør-Østlandet	88.7	98.0	95.5	Strong -
N004	Agder og Rogaland	86.1	102.8	100.2	Strong -
N005	Vestlandet	108.0	117.8	114.8	Strong +
N006	Trøndelag	127.7	142.6	139.0	Leader
N007	Nord-Norge	88.2	108.9	106.1	Strong
RS	Serbia				
RS11	Belgrade	59.2	63.9	62.3	Moderate
RS12	Vojvodina	62.5	67.4	65.7	Moderate
RS21	Šumadija and Western Serbia	63.1	68.0	66.2	Moderate
RS22	Southern and Eastern Serbia	57.5	62.1	60.5	Moderate

Annex 3: RIS normalised database

This annex gives the normalised scores for all indicators for the most recent year. Scores relative to EU average are not shown as these would allow recalculating confidential regional CIS data.

		Popula- tion with tertiary education	Lifelong learning	Scientific co-publi- cations	Most-cited publi- cations	R&D expendi- ture public sector	R&D ex- penditure business sector	Non-R&D innovation expendi- tures	Product or process in- novators	Marketing or organi- sational innovators
EU28	EU28									
BE	Belgium									
BE1	Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest	0.718	0.485	0.778	0.721	0.554	0.336	0.320	0.547	0.472
BE2	Vlaams Gewest	0.628	0.350	0.537	0.765	0.557	0.538	0.352	0.763	0.549
BE3	Région Wallonne	0.558	0.288	0.367	0.685	0.462	0.632	0.294	0.526	0.442
BG	Bulgaria									
BG3	Severna i iztochna Bulgaria	0.346	0.059	0.061	0.405	0.211	0.126	0.231	0.205	0.117
BG4	Yugozapadna i yuzhna tsentralna Bulgaria	0.522	0.156	0.245	0.267	0.391	0.338	0.163	0.190	0.140
CZ	Czech Republic									
CZ01	Praha	0.707	0.346	0.759	0.494	0.852	0.407	0.248	0.502	0.348
CZ02	Střední Čechy	0.348	0.371	0.177	0.405	0.365	0.524	0.412	0.344	0.258
CZ03	Jihozápad	0.294	0.409	0.333	0.541	0.516	0.392	0.421	0.370	0.230
CZ04	Severozápad	0.150	0.346	0.088	0.401	0.191	0.200	0.372	0.291	0.175
CZ05	Severovýchod	0.325	0.440	0.210	0.448	0.359	0.426	0.579	0.488	0.253
CZ06	Jihovýchod	0.532	0.471	0.394	0.486	0.707	0.523	0.475	0.449	0.275
CZ07	Střední Morava	0.394	0.353	0.321	0.505	0.504	0.363	0.417	0.479	0.277
CZ08	Moravskoslezsko	0.324	0.425	0.206	0.404	0.445	0.341	0.338	0.446	0.224
DK	Denmark									
DK01	Hovedstaden	0.964	0.985	0.888	0.807	0.785	0.746	0.185	0.527	0.442
DK02	Sjælland	0.508	0.885	0.407	0.704	0.500	0.266	0.210	0.553	0.459
DK03	Syddanmark	0.501	0.888	0.500	0.727	0.527	0.412	0.150	0.448	0.404
DK04	Midtjylland	0.630	0.897	0.638	0.762	0.730	0.489	0.181	0.516	0.443
DK05	Nordjylland	0.473	0.861	0.570	0.760	0.654	0.230	0.120	0.412	0.294
DE	Germany									
DE11	Stuttgart	0.530	0.444	0.278	0.676	0.445	0.985	0.352	0.756	0.648
DE12	Karlsruhe	0.539	0.444	0.659	0.763	0.813	0.671	0.358	0.614	0.620
DE13	Freiburg	0.448	0.415	0.472	0.756	0.625	0.521	0.375	0.608	0.651
DE14	Tübingen	0.513	0.437	0.565	0.717	0.612	0.802	0.363	0.756	0.732
DE21	Oberbayern	0.659	0.405	0.590	0.781	0.654	0.759	0.333	0.641	0.633
DE22	Niederbayern	0.337	0.304	0.128	0.499	0.000	0.410	0.295	0.521	0.556
DE23	Oberpfalz	0.441	0.327	0.356	0.737	0.000	0.491	0.278	0.554	0.590
DE24	Oberfranken	0.317	0.395	0.342	0.738	0.475	0.458	0.298	0.504	0.493
DE25	Mittelfranken	0.485	0.361	0.459	0.708	0.625	0.694	0.489	0.598	0.463
DE26	Unterfranken	0.456	0.382	0.437	0.760	0.500	0.528	0.378	0.602	0.543
DE27	Schwaben	0.415	0.339	0.182	0.543	0.246	0.416	0.366	0.686	0.658
DE30	Berlin	0.625	0.474	0.613	0.723	0.911	0.491	0.469	0.664	0.559
DE40	Brandenburg	0.229	0.327	0.449	0.777	0.663	0.250	0.360	0.481	0.417
DE50	Bremen	0.530	0.399	0.631	0.671	0.823	0.395	0.290	0.590	0.581
DE60	Hamburg	0.651	0.437	0.603	0.723	0.632	0.462	0.240	0.501	0.658
DE71	Darmstadt	0.549	0.425	0.420	0.698	0.508	0.647	0.253	0.649	0.570
DE72	Gießen	0.432	0.444	0.553	0.639	0.632	0.473	0.238	0.426	0.623

		Popula- tion with tertiary education	Lifelong learning	Scientific co-publi- cations	Most-cited publi- cations	R&D expendi- ture public sector	R&D ex- penditure business sector	Non-R&D innovation expendi- tures	Product or process in- novators	Marketing or organi- sational innovators
DE73	Kassel	0.408	0.385	0.196	0.648	0.391	0.480	0.308	0.543	0.611
DE80	Mecklenburg-Vorpommern	0.250	0.368	0.409	0.626	0.738	0.257	0.325	0.621	0.605
DE91	Braunschweig	0.449	0.385	0.606	0.708	0.935	0.952	0.304	0.515	0.578
DE92	Hannover	0.389	0.375	0.408	0.598	0.612	0.462	0.301	0.533	0.580
DE93	Lüneburg	0.339	0.316	0.127	0.827	0.277	0.363	0.328	0.584	0.542
DE94	Weser-Ems	0.336	0.304	0.215	0.650	0.342	0.260	0.377	0.526	0.491
DEA1	Düsseldorf	0.417	0.361	0.328	0.719	0.416	0.444	0.337	0.570	0.493
DEA2	Köln	0.484	0.389	0.549	0.728	0.850	0.422	0.331	0.758	0.654
DEA3	Münster	0.341	0.357	0.317	0.703	0.453	0.281	0.263	0.614	0.641
DEA4	Detmold	0.305	0.339	0.246	0.705	0.397	0.493	0.319	0.595	0.563
DEA5	Arnsberg	0.330	0.378	0.325	0.638	0.492	0.392	0.359	0.651	0.580
DEB1	Koblenz	0.329	0.353	0.133	0.669	0.291	0.272	0.327	0.695	0.614
DEB2	Trier	0.460	0.405	0.210	0.625	1.000	0.304	0.230	0.386	0.554
DEB3	Rhein Hessen-Pfalz	0.422	0.422	0.492	0.753	0.416	0.635	0.265	0.545	0.457
DECO	Saarland	0.279	0.296	0.398	0.613	0.589	0.281	0.321	0.602	0.525
DED2	Dresden	0.487	0.450	0.588	0.720	0.950	0.533	0.275	0.498	0.496
DED4	Chemnitz	0.336	0.353	0.238	0.503	0.602	0.392	0.354	0.547	0.458
DED5	Leipzig	0.501	0.462	0.610	0.690	0.806	0.208	0.327	0.704	0.582
DEEO	Sachsen-Anhalt	0.232	0.342	0.358	0.637	0.632	0.240	0.323	0.386	0.405
DEFO	Schleswig-Holstein	0.289	0.392	0.386	0.735	0.539	0.333	0.319	0.587	0.541
DEGO	Thüringen	0.272	0.389	0.403	0.699	0.681	0.403	0.309	0.579	0.540
IE	Ireland									
IE01	Border, Midland and Western	0.656	0.275	0.328	0.699	0.359	0.444	0.307	0.689	0.602
IE02	Southern and Eastern	0.821	0.350	0.493	0.731	0.416	0.416	0.282	0.654	0.617
EL	Greece									
EL51	Anatoliki Makedonia, Thraki	0.337	0.156	0.216	0.609	0.440	0.120	0.450	0.486	0.381
EL52	Kentriki Makedonia	0.587	0.162	0.349	0.580	0.504	0.108	0.401	0.475	0.503
EL53	Dytiki Makedonia	0.389	0.248	0.159	0.855	0.397	0.018	0.415	0.534	0.456
EL54	Ipeiros	0.590	0.098	0.524	0.622	0.606	0.088	0.352	0.342	0.395
EL61	Thessalia	0.468	0.138	0.248	0.599	0.445	0.054	0.407	0.560	0.362
EL62	Ionia Nisia	0.425	0.179	0.116	0.197	0.330	0.000	0.416	0.385	0.430
EL63	Dytiki Ellada	0.448	0.184	0.405	0.554	0.572	0.126	0.441	0.564	0.494
EL64	Stereia Ellada	0.363	0.032	0.096	0.605	0.220	0.196	0.367	0.501	0.421
EL65	Peloponnisos	0.568	0.050	0.091	0.489	0.342	0.095	0.251	0.453	0.504
EL30	Attiki	0.733	0.266	0.395	0.583	0.449	0.250	0.240	0.501	0.448
EL41	Voreio Aigaio	0.418	0.168	0.201	0.632	0.572	0.018	0.277	0.421	0.308
EL42	Notio Aigaio	0.448	0.083	0.048	0.537	0.324	0.000	0.561	0.546	0.355
EL43	Kriti	0.454	0.112	0.482	0.627	0.727	0.064	0.479	0.510	0.600
ES	Spain									
ES11	Galicia	0.673	0.453	0.346	0.600	0.435	0.240	0.192	0.258	0.219
ES12	Principado de Asturias	0.795	0.415	0.379	0.558	0.402	0.244	0.131	0.268	0.188
ES13	Cantabria	0.599	0.471	0.400	0.713	0.475	0.196	0.115	0.238	0.194
ES21	País Vasco	0.818	0.533	0.432	0.674	0.458	0.500	0.161	0.352	0.262
ES22	Comunidad Foral de Navarra	0.709	0.514	0.428	0.681	0.471	0.442	0.145	0.284	0.258
ES23	La Rioja	0.602	0.444	0.299	0.610	0.407	0.269	0.209	0.393	0.268
ES24	Aragón	0.633	0.485	0.414	0.617	0.402	0.272	0.132	0.298	0.287
ES30	Comunidad de Madrid	0.759	0.482	0.498	0.627	0.550	0.381	0.128	0.244	0.279
ES41	Castilla y León	0.609	0.474	0.288	0.538	0.435	0.278	0.201	0.238	0.220

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ES42	Castilla-la Mancha	0.456	0.437	0.211	0.515	0.291	0.204	0.155	0.275	0.287
ES43	Extremadura	0.583	0.434	0.216	0.491	0.467	0.126	0.145	0.264	0.154
ES51	Cataluña	0.627	0.371	0.488	0.699	0.508	0.360	0.169	0.314	0.312
ES52	Comunidad Valenciana	0.585	0.491	0.357	0.612	0.500	0.240	0.171	0.278	0.315
ES53	Illes Balears	0.386	0.428	0.295	0.740	0.336	0.044	0.193	0.150	0.164
ES61	Andalucía	0.441	0.425	0.316	0.580	0.520	0.226	0.169	0.264	0.289
ES62	Región de Murcia	0.461	0.447	0.312	0.515	0.449	0.223	0.115	0.227	0.245
ES63	Ciudad Autónoma de Ceuta	--	--	--	--	--	--	--	--	--
ES64	Ciudad Autónoma de Melilla	--	--	--	--	--	--	--	--	--
ES70	Canarias	0.451	0.415	0.304	0.629	0.391	0.088	0.062	0.119	0.187
HR	Croatia									
HR03	Jadranska Hrvatska	0.423	0.150	0.255	0.337	0.269	0.147	0.573	0.283	0.299
HR04	Kontinentalna Hrvatska	0.413	0.195	0.307	0.342	0.458	0.257	0.494	0.393	0.352
FR	France									
FR1	Île de France	0.866	0.668	0.537	0.732	0.609	0.575	0.254	0.530	0.521
FR2	Bassin Parisien	0.503	0.619	0.234	0.643	0.365	0.388	0.292	0.478	0.445
FR3	Nord - Pas-de-Calais	0.528	0.645	0.297	0.659	0.440	0.247	0.524	0.464	0.427
FR4	Est	0.568	0.690	0.362	0.696	0.524	0.407	0.353	0.452	0.447
FR5	Ouest	0.613	0.701	0.307	0.653	0.471	0.372	0.309	0.512	0.474
FR6	Sud-Ouest	0.670	0.731	0.383	0.742	0.606	0.578	0.324	0.545	0.447
FR7	Centre-Est	0.745	0.747	0.449	0.722	0.599	0.544	0.314	0.577	0.498
FR8	Méditerranée	0.645	0.628	0.422	0.715	0.675	0.440	0.244	0.437	0.437
FRA	French overseas departments	--	--	--	--	--	--	--	--	--
IT	Italy									
ITC1	Piemonte	0.298	0.364	0.339	0.666	0.431	0.546	0.348	0.493	0.421
ITC2	Valle d'Aosta/Vallée d'Aoste	0.330	0.371	0.195	0.481	0.269	0.180	0.137	0.440	0.344
ITC3	Liguria	0.336	0.357	0.444	0.704	0.531	0.336	0.257	0.416	0.324
ITC4	Lombardia	0.392	0.389	0.391	0.696	0.402	0.379	0.278	0.519	0.419
ITH1	Provincia Autonoma Bolzano/ Bozen	0.320	0.546	0.315	0.605	0.324	0.253	0.303	0.528	0.438
ITH2	Provincia Autonoma Trento	0.430	0.450	0.637	0.645	0.638	0.370	0.269	0.543	0.533
ITH3	Veneto	0.339	0.357	0.376	0.667	0.397	0.331	0.345	0.582	0.494
ITH4	Friuli-Venezia Giulia	0.348	0.462	0.582	0.704	0.554	0.367	0.349	0.576	0.442
ITH5	Emilia-Romagna	0.380	0.409	0.447	0.658	0.484	0.430	0.332	0.478	0.323
ITI1	Toscana	0.398	0.422	0.479	0.679	0.508	0.328	0.316	0.492	0.390
ITI2	Umbria	0.432	0.402	0.433	0.668	0.543	0.171	0.338	0.433	0.506
ITI3	Marche	0.379	0.364	0.317	0.630	0.407	0.266	0.358	0.369	0.287
ITI4	Lazio	0.429	0.395	0.470	0.618	0.651	0.287	0.182	0.403	0.367
ITF1	Abruzzo	0.313	0.353	0.363	0.587	0.492	0.230	0.370	0.325	0.291
ITF2	Molise	0.442	0.375	0.326	0.597	0.381	0.188	0.257	0.357	0.330
ITF3	Campania	0.203	0.288	0.310	0.647	0.572	0.269	0.273	0.270	0.309
ITF4	Puglia	0.205	0.296	0.274	0.673	0.539	0.188	0.310	0.387	0.309
ITF5	Basilicata	0.277	0.312	0.296	0.523	0.471	0.044	0.299	0.368	0.289
ITF6	Calabria	0.301	0.308	0.266	0.722	0.561	0.054	0.387	0.487	0.322
ITG1	Sicilia	0.198	0.257	0.276	0.630	0.579	0.175	0.278	0.264	0.307
ITG2	Sardegna	0.205	0.378	0.336	0.540	0.557	0.054	0.165	0.358	0.330
HU	Hungary									
HU10	Közép-Magyarország	0.714	0.428	0.417	0.459	0.435	0.467	0.219	0.250	0.186

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HU21	Közép-Dunántúl	0.341	0.431	0.158	0.458	0.342	0.356	0.285	0.211	0.116
HU22	Nyugat-Dunántúl	0.413	0.257	0.130	0.257	0.277	0.257	0.310	0.188	0.115
HU23	Dél-Dunántúl	0.327	0.189	0.225	0.342	0.359	0.188	0.345	0.191	0.091
HU31	Észak-Magyarország	0.353	0.300	0.103	0.091	0.220	0.299	0.275	0.211	0.137
HU32	Észak-Alföld	0.305	0.353	0.271	0.438	0.370	0.351	0.392	0.157	0.126
HU33	Dél-Alföld	0.361	0.316	0.283	0.446	0.421	0.326	0.299	0.215	0.099
NL	Netherlands									
NL11	Groningen	0.640	0.709	0.945	0.819	0.809	0.210	0.170	0.674	0.396
NL12	Friesland	0.463	0.647	0.174	0.722	0.114	0.373	0.143	0.554	0.310
NL13	Drenthe	0.460	0.612	0.291	0.852	0.198	0.219	0.167	0.675	0.397
NL21	Overijssel	0.608	0.645	0.427	0.770	0.521	0.426	0.147	0.593	0.339
NL22	Gelderland	0.657	0.677	0.665	0.814	0.688	0.403	0.161	0.616	0.353
NL23	Flevoland	0.482	0.692	0.219	0.775	0.598	0.324	0.159	0.646	0.381
NL31	Utrecht	0.843	0.733	0.817	0.826	0.758	0.293	0.175	0.707	0.421
NL32	Noord-Holland	0.835	0.707	0.685	0.846	0.592	0.353	0.152	0.614	0.369
NL33	Zuid-Holland	0.699	0.685	0.630	0.812	0.666	0.407	0.160	0.627	0.365
NL34	Zeeland	0.494	0.659	0.225	0.922	0.190	0.396	0.146	0.592	0.337
NL41	Noord-Brabant	0.644	0.654	0.375	0.746	0.396	0.620	0.151	0.605	0.346
NL42	Limburg	0.580	0.638	0.587	0.794	0.514	0.461	0.146	0.588	0.332
AT	Austria									
AT1	Ostösterreich	0.661	0.609	0.569	0.733	0.675	0.507	0.197	0.595	0.566
AT2	Südösterreich	0.473	0.541	0.462	0.687	0.619	0.754	0.302	0.578	0.518
AT3	Westösterreich	0.458	0.543	0.413	0.647	0.458	0.594	0.325	0.580	0.507
PL	Poland									
PL11	Lódzkie	0.644	0.138	0.209	0.284	0.435	0.152	0.485	0.180	0.049
PL12	Mazowieckie	0.871	0.312	0.338	0.401	0.599	0.351	0.388	0.202	0.111
PL21	Malopolskie	0.620	0.215	0.333	0.378	0.546	0.307	0.346	0.174	0.068
PL22	Slaskie	0.575	0.179	0.162	0.364	0.348	0.184	0.309	0.207	0.120
PL31	Lubelskie	0.606	0.189	0.180	0.250	0.592	0.132	0.390	0.196	0.090
PL32	Podkarpackie	0.554	0.105	0.112	0.228	0.359	0.407	0.649	0.193	0.070
PL33	Swietokrzyskie	0.597	0.138	0.108	0.459	0.298	0.108	0.234	0.143	0.081
PL34	Podlaskie	0.656	0.189	0.182	0.267	0.440	0.114	0.235	0.192	0.062
PL41	Wielkopolskie	0.578	0.138	0.209	0.366	0.416	0.157	0.379	0.143	0.074
PL42	Zachodniopomorskie	0.571	0.150	0.150	0.225	0.277	0.088	0.410	0.176	0.085
PL43	Lubuskie	0.527	0.144	0.120	0.483	0.191	0.088	0.336	0.141	0.046
PL51	Dolnoslaskie	0.568	0.210	0.257	0.388	0.354	0.244	0.314	0.211	0.141
PL52	Opolskie	0.558	0.138	0.121	0.441	0.311	0.095	0.248	0.235	0.062
PL61	Kujawsko-Pomorskie	0.460	0.162	0.167	0.372	0.254	0.142	0.518	0.164	0.082
PL62	Warminsko-Mazurskie	0.463	0.144	0.143	0.253	0.291	0.064	0.387	0.178	0.088
PL63	Pomorskie	0.596	0.271	0.226	0.372	0.421	0.299	0.378	0.155	0.082
PT	Portugal									
PT11	Norte	0.406	0.392	0.389	0.574	0.512	0.326	0.426	0.566	0.383
PT15	Algarve	0.269	0.385	0.368	0.505	0.376	0.054	0.359	0.424	0.270
PT16	Centro	0.394	0.434	0.425	0.596	0.527	0.310	0.498	0.684	0.489
PT17	Lisboa	0.597	0.538	0.503	0.611	0.596	0.318	0.199	0.645	0.466
PT18	Alentejo	0.315	0.392	0.234	0.469	0.318	0.162	0.352	0.605	0.426
PT20	Região Autónoma dos Açores	0.434	0.324	0.245	0.222	0.365	0.018	0.619	0.472	0.473

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PT30	Região Autónoma da Madeira	0.372	0.399	0.225	0.373	0.330	0.088	0.323	0.408	0.427
RO	Romania									
R011	Nord-Vest	0.349	0.059	0.237	0.423	0.269	0.088	0.049	0.033	0.031
R012	Centru	0.308	0.041	0.137	0.399	0.168	0.175	0.154	0.061	0.059
R021	Nord-Est	0.157	0.032	0.147	0.328	0.298	0.064	0.097	0.019	0.099
R022	Sud-Est	0.227	0.011	0.060	0.355	0.142	0.000	0.270	0.189	0.042
R031	Sud - Muntenia	0.188	0.105	0.024	0.277	0.127	0.208	0.148	0.063	0.055
R032	Bucuresti - Ilfov	0.718	0.083	0.366	0.344	0.462	0.175	0.138	0.089	0.082
R041	Sud-Vest Oltenia	0.289	0.032	0.070	0.342	0.229	0.018	0.002	0.000	0.000
R042	Vest	0.284	0.090	0.189	0.343	0.238	0.044	0.212	0.027	0.013
SI	Slovenia									
SI03	Vzhodna Slovenija	0.561	0.468	0.222	0.628	0.211	0.552	0.292	0.398	0.324
SI04	Zahodna Slovenija	0.709	0.549	0.616	0.550	0.592	0.552	0.270	0.455	0.405
SK	Slovakia									
SK01	Bratislavský kraj	0.680	0.346	0.617	0.388	0.638	0.257	0.382	0.268	0.267
SK02	Západné Slovensko	0.322	0.179	0.136	0.429	0.354	0.212	0.298	0.190	0.189
SK03	Stredné Slovensko	0.298	0.150	0.166	0.359	0.431	0.196	0.271	0.264	0.221
SK04	Východné Slovensko	0.358	0.098	0.258	0.346	0.416	0.120	0.404	0.243	0.261
FI	Finland									
FI1B	Helsinki-Uusimaa	0.775	0.878	0.459	0.663	0.585	0.635	0.299	0.640	0.386
FI1C	Etelä-Suomi	0.580	0.793	0.714	0.686	0.707	0.668	0.158	0.638	0.484
FI19	Länsi-Suomi	0.649	0.784	0.581	0.703	0.557	0.523	0.292	0.640	0.411
FI1D	Pohjois- ja Itä-Suomi	0.614	0.770	0.502	0.615	0.657	0.578	0.338	0.615	0.354
FI20	Åland	--	--	--	--	--	--	--	--	--
SE	Sweden									
SE11	Stockholm	0.919	0.920	0.795	0.762	0.644	0.695	0.716	0.862	0.505
SE12	Östra Mellansverige	0.676	0.885	0.751	0.711	0.780	0.631	0.677	0.580	0.500
SE21	Småland med öarna	0.671	0.843	0.265	0.556	0.318	0.440	0.384	0.345	0.071
SE22	Sydsverige	0.726	0.888	0.652	0.713	0.718	0.660	0.332	0.465	0.388
SE23	Västsverige	0.747	0.901	0.549	0.728	0.606	0.678	0.351	0.386	0.465
SE31	Norra Mellansverige	0.530	0.828	0.219	0.538	0.324	0.416	0.362	0.328	0.087
SE32	Mellersta Norrland	0.565	0.837	0.228	0.479	0.354	0.263	0.453	0.391	0.135
SE33	Övre Norrland	0.668	0.860	0.795	0.647	0.887	0.284	0.321	0.421	0.294
UK	United Kingdom									
UKC	North East	0.561	0.569	0.473	0.821	0.435	0.275	0.488	0.373	0.566
UKD	North West	0.597	0.587	0.446	0.777	0.421	0.407	0.351	0.387	0.513
UKE	Yorkshire and The Humber	0.556	0.595	0.440	0.789	0.449	0.287	0.231	0.620	0.567
UKF	East Midlands	0.609	0.619	0.396	0.797	0.391	0.469	0.188	0.594	0.529
UKG	West Midlands	0.578	0.546	0.388	0.802	0.354	0.497	0.354	0.482	0.540
UKH	East of England	0.596	0.595	0.547	0.927	0.572	0.676	0.225	0.495	0.568
UKI	London	1.000	0.647	0.676	0.894	0.500	0.247	0.166	0.479	0.507
UKJ	South East	0.654	0.631	0.559	0.867	0.543	0.516	0.491	0.405	0.597
UKK	South West	0.726	0.640	0.431	0.847	0.467	0.432	0.366	0.347	0.417
UKL	Wales	0.590	0.619	0.418	0.795	0.449	0.310	0.274	0.442	0.523
UKM	Scotland	0.886	0.595	0.564	0.811	0.622	0.310	0.211	0.484	0.541
UKN	Northern Ireland	0.515	0.494	0.400	0.797	0.397	0.374	0.239	0.319	0.437
CH	Switzerland									
CH01	Région lémanique	0.735	0.869	0.979	0.877	0.606	0.585	--	0.508	0.636

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CH02	Espace Mittelland	0.692	0.927	0.613	0.769	0.606	0.585	--	0.519	0.610
CH03	Nordwestschweiz	0.731	0.969	0.857	0.816	0.606	0.585	--	0.671	0.644
CH04	Zürich	0.931	0.998	1.000	0.884	0.606	0.585	--	0.843	0.896
CH05	Ostschweiz	0.731	0.925	0.342	0.759	0.606	0.585	--	0.831	0.725
CH06	Zentralschweiz	0.762	0.966	0.306	0.685	0.606	0.585	--	0.650	0.824
CH07	Ticino	0.793	0.778	0.520	0.770	0.606	0.585	--	0.843	0.867
NO	Norway									
N001	Oslo og Akershus	0.936	0.766	0.827	0.721	0.770	0.475	0.253	0.604	0.544
N002	Hedmark og Oppland	0.692	0.690	0.260	0.594	0.359	0.260	0.325	0.611	0.425
N003	Sør-Østlandet	0.592	0.661	0.201	0.606	0.336	0.446	0.253	0.549	0.434
N004	Agder og Rogaland	0.656	0.670	0.309	0.634	0.348	0.341	0.318	0.566	0.468
N005	Vestlandet	0.757	0.703	0.640	0.675	0.632	0.299	0.377	0.591	0.496
N006	Trøndelag	0.842	0.688	0.843	0.685	0.909	0.679	0.864	0.600	0.484
N007	Nord-Norge	0.639	0.707	0.639	0.683	0.724	0.208	0.325	0.571	0.486
RS	Serbia									
RS11	Belgrade	--	--	0.227	0.386	0.467	0.166	0.431	0.469	0.404
RS12	Vojvodina	--	--	0.227	0.386	0.467	0.166	0.315	0.465	0.466
RS21	Šumadija and Western Serbia	--	--	0.227	0.386	0.467	0.166	0.475	0.500	0.418
RS22	Southern and Eastern Serbia	--	--	0.227	0.386	0.467	0.166	0.498	0.382	0.365

		SMEs innovating in-house	Innovative SMEs collaborating with others	Public-private co-publications	EPO patent applications	Trade-mark applications	Design applications	Employment medium/high-tech manufacturing & knowledge-intensive services	Exports in medium-high and high-tech manufacturing	Sales of new-to-market and new-to-firm innovations
EU28		EU28								
BE		Belgium								
BE1	Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest	0.544	0.696	0.550	0.260	0.376	0.372	0.577	0.574	0.388
BE2	Vlaams Gewest	0.723	1.000	0.403	0.417	0.378	0.541	0.545	0.538	0.369
BE3	Région Wallonne	0.565	0.773	0.283	0.408	0.377	0.507	0.484	0.575	0.337
BG		Bulgaria								
BG3	Severna i iztočna Bulgaria	0.194	0.078	0.033	0.072	0.291	0.477	0.366	0.307	0.265
BG4	Yugozapadna i yuzhna tsentralna Bulgaria	0.176	0.102	0.114	0.106	0.479	0.548	0.513	0.271	0.291
CZ		Czech Republic								
CZ01	Praha	0.513	0.394	0.454	0.154	0.415	0.511	0.728	0.808	0.405
CZ02	Střední Čechy	0.337	0.205	0.066	0.173	0.179	0.504	0.728	0.901	0.367
CZ03	Jihozápad	0.375	0.243	0.111	0.134	0.204	0.341	0.724	0.847	0.366
CZ04	Severozápad	0.281	0.248	0.058	0.169	0.194	0.387	0.548	0.724	0.430
CZ05	Severovýchod	0.499	0.423	0.146	0.241	0.306	0.485	0.781	0.780	0.550
CZ06	Jihovýchod	0.447	0.237	0.200	0.198	0.288	0.541	0.710	0.747	0.404
CZ07	Střední Morava	0.500	0.367	0.196	0.177	0.254	0.590	0.584	0.630	0.423
CZ08	Moravskoslezsko	0.422	0.312	0.082	0.135	0.254	0.485	0.642	0.592	0.362
DK		Denmark								
DK01	Hovedstaden	0.508	0.427	0.787	0.555	0.473	0.735	0.731	0.648	0.333
DK02	Sjælland	0.573	0.414	0.314	0.439	0.300	0.490	0.441	0.545	0.456
DK03	Syddanmark	0.426	0.469	0.339	0.463	0.437	0.773	0.437	0.413	0.413
DK04	Midtjylland	0.506	0.406	0.448	0.626	0.481	0.828	0.509	0.449	0.379
DK05	Nordjylland	0.392	0.367	0.404	0.439	0.335	0.653	0.427	0.360	0.341
DE		Germany								
DE11	Stuttgart	0.738	0.310	0.287	0.733	0.419	0.741	0.982	0.940	0.415
DE12	Karlsruhe	0.637	0.278	0.528	0.692	0.416	0.539	0.803	0.871	0.374
DE13	Freiburg	0.643	0.265	0.409	0.695	0.409	0.749	0.699	0.825	0.389
DE14	Tübingen	0.753	0.330	0.450	0.713	0.445	0.599	0.814	0.812	0.443
DE21	Oberbayern	0.658	0.289	0.500	0.657	0.507	0.615	0.889	0.993	0.391
DE22	Niederbayern	0.562	0.090	0.095	0.462	0.315	0.523	0.695	0.760	0.409
DE23	Oberpfalz	0.564	0.171	0.292	0.720	0.336	0.443	0.728	0.774	0.367
DE24	Oberfranken	0.538	0.247	0.291	0.573	0.452	0.705	0.642	0.685	0.356
DE25	Mittelfranken	0.601	0.248	0.454	0.774	0.418	0.593	0.728	0.814	0.365
DE26	Unterfranken	0.606	0.301	0.364	0.620	0.425	0.537	0.720	0.721	0.391
DE27	Schwaben	0.685	0.360	0.143	0.610	0.425	0.561	0.713	0.794	0.406
DE30	Berlin	0.650	0.432	0.486	0.484	0.537	0.467	0.667	0.945	0.445
DE40	Brandenburg	0.473	0.398	0.259	0.393	0.269	0.307	0.430	0.782	0.369
DE50	Bremen	0.610	0.322	0.448	0.303	0.371	0.397	0.573	0.921	0.343
DE60	Hamburg	0.540	0.235	0.441	0.405	0.520	0.555	0.738	0.866	0.253
DE71	Darmstadt	0.684	0.282	0.438	0.546	0.410	0.464	0.731	0.859	0.351
DE72	Gießen	0.520	0.316	0.396	0.570	0.378	0.532	0.545	0.758	0.398
DE73	Kassel	0.606	0.194	0.148	0.445	0.306	0.523	0.599	0.737	0.355
DE80	Mecklenburg-Vorpommern	0.639	0.295	0.282	0.276	0.256	0.231	0.409	0.658	0.371
DE91	Braunschweig	0.540	0.236	0.423	0.487	0.274	0.362	0.860	0.990	0.296

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DE92	Hannover	0.586	0.382	0.372	0.515	0.385	0.590	0.545	0.809	0.299
DE93	Lüneburg	0.599	0.292	0.117	0.508	0.379	0.362	0.516	0.793	0.333
DE94	Weser-Ems	0.545	0.276	0.133	0.416	0.410	0.477	0.448	0.559	0.366
DEA1	Düsseldorf	0.594	0.235	0.330	0.518	0.446	0.546	0.581	0.591	0.305
DEA2	Köln	0.732	0.368	0.415	0.519	0.424	0.456	0.627	0.768	0.384
DEA3	Münster	0.644	0.399	0.249	0.490	0.405	0.544	0.491	0.669	0.420
DEA4	Detmold	0.611	0.306	0.198	0.588	0.446	0.746	0.534	0.655	0.347
DEA5	Arnsberg	0.662	0.387	0.234	0.522	0.381	0.699	0.559	0.577	0.373
DEB1	Koblenz	0.643	0.272	0.131	0.502	0.413	0.613	0.491	0.663	0.405
DEB2	Trier	0.421	0.382	0.107	0.375	0.419	0.539	0.423	0.455	0.289
DEB3	Rhein Hessen-Pfalz	0.601	0.287	0.534	0.670	0.361	0.454	0.720	0.962	0.400
DECO	Saarland	0.600	0.399	0.379	0.414	0.355	0.348	0.588	0.463	0.395
DED2	Dresden	0.520	0.428	0.375	0.489	0.274	0.334	0.563	0.682	0.421
DED4	Chemnitz	0.510	0.617	0.147	0.361	0.247	0.311	0.588	0.655	0.462
DED5	Leipzig	0.672	0.526	0.379	0.300	0.279	0.323	0.566	0.602	0.413
DEEO	Sachsen-Anhalt	0.444	0.441	0.257	0.258	0.221	0.291	0.405	0.673	0.430
DEFO	Schleswig-Holstein	0.600	0.340	0.274	0.490	0.391	0.555	0.466	0.778	0.366
DEGO	Thüringen	0.596	0.338	0.268	0.441	0.280	0.362	0.523	0.777	0.357
IE	Ireland									
IE01	Border, Midland and Western	0.660	0.427	0.181	0.314	0.314	0.311	0.459	0.564	0.417
IE02	Southern and Eastern	0.660	0.451	0.301	0.268	0.409	0.368	0.634	0.600	0.407
EL	Greece									
EL51	Anatoliki Makedonia, Thraki	0.408	0.400	0.074	0.061	0.194	0.000	0.219	0.140	0.357
EL52	Kentriki Makedonia	0.498	0.429	0.187	0.135	0.301	0.274	0.326	0.141	0.411
EL53	Dytiki Makedonia	0.551	0.576	0.124	0.096	0.161	0.220	0.201	0.084	0.468
EL54	Ipeiros	0.273	0.205	0.190	0.053	0.182	0.225	0.183	0.041	0.172
EL61	Thessalia	0.616	0.405	0.098	0.050	0.257	0.209	0.229	0.181	0.273
EL62	Ionia Nisia	0.398	0.329	0.073	0.066	0.202	0.000	0.251	0.023	0.235
EL63	Dytiki Ellada	0.611	0.405	0.211	0.129	0.153	0.000	0.208	0.147	0.475
EL64	Stereia Ellada	0.518	0.322	0.079	0.051	0.182	0.225	0.201	0.177	0.536
EL65	Peloponnisos	0.485	0.258	0.045	0.051	0.212	0.000	0.158	0.151	0.338
EL30	Attiki	0.516	0.529	0.256	0.113	0.328	0.225	0.602	0.340	0.496
EL41	Voreio Aigaio	0.464	0.431	0.045	0.136	0.290	0.000	0.300	0.137	0.351
EL42	Notio Aigaio	0.471	0.264	0.028	0.115	0.259	0.000	0.193	0.153	0.203
EL43	Kriti	0.558	0.661	0.255	0.153	0.263	0.000	0.196	0.121	0.490
ES	Spain									
ES11	Galicia	0.241	0.315	0.165	0.156	0.352	0.330	0.387	0.521	0.455
ES12	Principado de Asturias	0.291	0.287	0.209	0.153	0.190	0.307	0.337	0.432	0.318
ES13	Cantabria	0.238	0.183	0.253	0.171	0.344	0.358	0.401	0.595	0.421
ES21	País Vasco	0.381	0.455	0.246	0.280	0.377	0.337	0.609	0.574	0.641
ES22	Comunidad Foral de Navarra	0.282	0.280	0.293	0.290	0.442	0.384	0.602	0.583	0.480
ES23	La Rioja	0.425	0.231	0.072	0.125	0.542	0.649	0.308	0.304	0.502
ES24	Aragón	0.269	0.199	0.186	0.326	0.351	0.381	0.530	0.665	0.454
ES30	Comunidad de Madrid	0.236	0.204	0.320	0.224	0.476	0.375	0.724	0.669	0.423
ES41	Castilla y León	0.212	0.187	0.142	0.113	0.306	0.265	0.344	0.508	0.532

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ES42	Castilla-la Mancha	0.253	0.191	0.108	0.100	0.419	0.344	0.301	0.292	0.452
ES43	Extremadura	0.219	0.184	0.088	0.062	0.268	0.225	0.190	0.272	0.505
ES51	Cataluña	0.292	0.200	0.320	0.281	0.535	0.532	0.599	0.732	0.494
ES52	Comunidad Valenciana	0.238	0.187	0.183	0.191	0.511	0.718	0.376	0.387	0.424
ES53	Illes Balears	0.121	0.038	0.129	0.095	0.499	0.426	0.276	0.491	0.407
ES61	Andalucía	0.240	0.174	0.158	0.114	0.350	0.323	0.305	0.389	0.473
ES62	Región de Murcia	0.221	0.154	0.171	0.149	0.525	0.548	0.337	0.366	0.390
ES63	Ciudad Autónoma de Ceuta	--	--	--	--	--	--	--	--	--
ES64	Ciudad Autónoma de Melilla	--	--	--	--	--	--	--	--	--
ES70	Canarias	0.117	0.099	0.133	0.084	0.329	0.163	0.247	0.225	0.190
HR	Croatia									
HR03	Jadranska Hrvatska	0.251	0.158	0.118	0.051	0.432	0.497	0.437	0.506	0.192
HR04	Kontinentalna Hrvatska	0.389	0.234	0.135	0.089	0.140	0.182	0.376	0.506	0.265
FR	France									
FR1	Île de France	0.526	0.480	0.413	0.439	0.388	0.516	0.695	0.820	0.418
FR2	Bassin Parisien	0.472	0.355	0.175	0.355	0.206	0.459	0.409	0.649	0.384
FR3	Nord - Pas-de-Calais	0.452	0.402	0.231	0.251	0.239	0.576	0.405	0.528	0.426
FR4	Est	0.448	0.358	0.227	0.415	0.268	0.454	0.523	0.800	0.475
FR5	Ouest	0.507	0.430	0.233	0.357	0.252	0.384	0.401	0.580	0.424
FR6	Sud-Ouest	0.530	0.456	0.304	0.346	0.279	0.311	0.470	0.652	0.352
FR7	Centre-Est	0.594	0.477	0.346	0.585	0.296	0.544	0.498	0.587	0.493
FR8	Méditerranée	0.428	0.343	0.275	0.358	0.298	0.355	0.401	0.621	0.349
FRA	French overseas departments	--	--	--	--	--	--	--	--	--
IT	Italy									
ITC1	Piemonte	0.521	0.304	0.248	0.375	0.367	0.525	0.717	0.680	0.467
ITC2	Valle d'Aosta/Vallée d'Aoste	0.452	0.138	0.062	0.159	0.423	0.509	0.703	0.299	0.505
ITC3	Liguria	0.410	0.168	0.255	0.275	0.305	0.299	0.495	0.744	0.417
ITC4	Lombardia	0.555	0.210	0.295	0.346	0.430	0.574	0.738	0.630	0.445
ITH1	Provincia Autonoma Bolzano/Bozen	0.561	0.222	0.153	0.359	0.446	0.565	0.337	0.375	0.409
ITH2	Provincia Autonoma Trento	0.567	0.342	0.279	0.292	0.311	0.260	0.437	0.539	0.427
ITH3	Veneto	0.619	0.186	0.224	0.359	0.465	0.753	0.563	0.570	0.445
ITH4	Friuli-Venezia Giulia	0.605	0.244	0.316	0.492	0.406	0.868	0.545	0.631	0.443
ITH5	Emilia-Romagna	0.493	0.166	0.269	0.403	0.403	0.673	0.659	0.672	0.444
ITI1	Toscana	0.513	0.208	0.344	0.306	0.396	0.555	0.448	0.445	0.448
ITI2	Umbria	0.405	0.215	0.295	0.226	0.300	0.751	0.462	0.547	0.423
ITI3	Marche	0.392	0.223	0.167	0.320	0.388	0.732	0.566	0.439	0.451
ITI4	Lazio	0.414	0.326	0.292	0.196	0.320	0.375	0.595	0.729	0.433
ITF1	Abruzzo	0.347	0.224	0.240	0.233	0.259	0.387	0.527	0.564	0.452
ITF2	Molise	0.362	0.216	0.126	0.116	0.247	0.274	0.538	0.624	0.446
ITF3	Campania	0.269	0.092	0.174	0.136	0.289	0.375	0.427	0.554	0.419
ITF4	Puglia	0.378	0.233	0.177	0.175	0.273	0.394	0.362	0.371	0.409
ITF5	Basilicata	0.376	0.084	0.127	0.127	0.276	0.365	0.584	0.621	0.449
ITF6	Calabria	0.504	0.209	0.124	0.103	0.239	0.231	0.297	0.371	0.388
ITG1	Sicilia	0.285	0.157	0.150	0.100	0.206	0.191	0.315	0.459	0.394
ITG2	Sardegna	0.345	0.414	0.225	0.108	0.212	0.148	0.283	0.275	0.392

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HU	Hungary									
HU10	Közép-Magyarország	0.237	0.254	0.318	0.244	0.335	0.307	0.742	0.822	0.227
HU21	Közép-Dunántúl	0.195	0.165	0.120	0.160	0.195	0.231	0.742	0.810	0.266
HU22	Nyugat-Dunántúl	0.167	0.204	0.058	0.114	0.212	0.387	0.677	0.900	0.374
HU23	Dél-Dunántúl	0.174	0.149	0.143	0.120	0.167	0.358	0.376	0.817	0.318
HU31	Észak-Magyarország	0.195	0.193	0.051	0.188	0.170	0.191	0.577	0.847	0.262
HU32	Észak-Alföld	0.144	0.113	0.126	0.140	0.235	0.265	0.373	0.814	0.269
HU33	Dél-Alföld	0.202	0.191	0.249	0.239	0.206	0.295	0.366	0.692	0.316
NL	Netherlands									
NL11	Groningen	0.566	0.630	0.705	0.243	0.226	0.256	0.477	0.395	0.401
NL12	Friesland	0.639	0.514	0.100	0.286	0.340	0.485	0.412	0.405	0.367
NL13	Drenthe	0.628	0.638	0.356	0.242	0.203	0.459	0.462	0.641	0.374
NL21	Overijssel	0.658	0.553	0.357	0.397	0.352	0.626	0.487	0.486	0.363
NL22	Gelderland	0.619	0.569	0.444	0.393	0.379	0.640	0.487	0.411	0.379
NL23	Flevoland	0.562	0.576	0.209	0.234	0.387	0.420	0.573	0.519	0.374
NL31	Utrecht	0.471	0.622	0.694	0.291	0.391	0.521	0.627	0.528	0.412
NL32	Noord-Holland	0.525	0.536	0.505	0.313	0.495	0.514	0.616	0.433	0.369
NL33	Zuid-Holland	0.544	0.580	0.515	0.374	0.383	0.580	0.581	0.460	0.375
NL34	Zeeland	0.686	0.591	0.148	0.305	0.240	0.341	0.448	0.597	0.368
NL41	Noord-Brabant	0.652	0.562	0.428	0.821	0.406	0.773	0.566	0.549	0.368
NL42	Limburg	0.660	0.556	0.451	0.553	0.379	0.426	0.484	0.692	0.361
AT	Austria									
AT1	Ostösterreich	0.594	0.636	0.404	0.380	0.505	0.514	0.545	0.600	0.480
AT2	Südösterreich	0.614	0.730	0.415	0.480	0.403	0.477	0.541	0.692	0.493
AT3	Westösterreich	0.558	0.655	0.316	0.556	0.508	0.789	0.523	0.635	0.397
PL	Poland									
PL11	Lódzkie	0.156	0.068	0.144	0.158	0.357	0.684	0.409	0.477	0.211
PL12	Mazowieckie	0.157	0.117	0.190	0.139	0.432	0.611	0.530	0.542	0.319
PL21	Malopolskie	0.188	0.095	0.176	0.228	0.356	0.694	0.448	0.534	0.234
PL22	Slaskie	0.177	0.143	0.105	0.108	0.246	0.586	0.530	0.677	0.205
PL31	Lubelskie	0.169	0.115	0.106	0.156	0.225	0.485	0.269	0.516	0.265
PL32	Podkarpackie	0.186	0.141	0.026	0.085	0.278	0.800	0.366	0.632	0.195
PL33	Swietokrzyskie	0.112	0.107	0.000	0.124	0.210	0.291	0.254	0.385	0.174
PL34	Podlaskie	0.167	0.109	0.107	0.068	0.249	0.727	0.237	0.541	0.183
PL41	Wielkopolskie	0.146	0.077	0.111	0.094	0.308	0.798	0.416	0.527	0.187
PL42	Zachodniopomorskie	0.163	0.098	0.112	0.119	0.292	0.546	0.384	0.833	0.207
PL43	Lubuskie	0.141	0.065	0.017	0.178	0.236	0.462	0.409	0.478	0.212
PL51	Dolnoslaskie	0.192	0.101	0.134	0.135	0.278	0.615	0.659	0.835	0.277
PL52	Opolskie	0.212	0.131	0.066	0.018	0.246	0.475	0.516	0.436	0.233
PL61	Kujawsko-Pomorskie	0.163	0.108	0.068	0.102	0.296	0.678	0.308	0.528	0.241
PL62	Warminsko-Mazurskie	0.165	0.098	0.078	0.062	0.202	0.595	0.296	0.301	0.237
PL63	Pomorskie	0.138	0.090	0.119	0.146	0.339	0.578	0.509	0.771	0.228
PT	Portugal									
PT11	Norte	0.536	0.202	0.141	0.130	0.403	0.607	0.341	0.357	0.340
PT15	Algarve	0.240	0.043	0.135	0.068	0.211	0.319	0.380	0.236	0.081
PT16	Centro	0.723	0.323	0.147	0.132	0.336	0.403	0.280	0.440	0.362
PT17	Lisboa	0.633	0.272	0.229	0.134	0.312	0.311	0.581	0.560	0.285

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PT18	Alentejo	0.595	0.245	0.065	0.149	0.388	0.184	0.300	0.526	0.314
PT20	Região Autónoma dos Açores	0.621	0.082	0.029	0.079	0.209	0.000	--	0.023	0.194
PT30	Região Autónoma da Madeira	0.427	0.155	0.062	0.072	0.519	0.214	--	0.000	0.189
RO	Romania									
RO11	Nord-Vest	0.035	0.056	0.079	0.083	0.215	0.148	0.376	0.363	0.093
RO12	Centru	0.055	0.044	0.042	0.053	0.177	0.225	0.509	0.516	0.101
RO21	Nord-Est	0.020	0.005	0.056	0.052	0.143	0.156	0.165	0.460	0.128
RO22	Sud-Est	0.200	0.061	0.017	0.025	0.111	0.085	0.265	0.452	0.261
RO31	Sud - Muntenia	0.066	0.049	0.017	0.035	0.107	0.139	0.419	0.649	0.152
RO32	Bucuresti - Ilfov	0.094	0.087	0.203	0.111	0.320	0.337	0.645	0.560	0.152
RO41	Sud-Vest Oltenia	0.000	0.004	0.017	0.027	0.102	0.148	0.251	0.881	0.034
RO42	Vest	0.029	0.028	0.068	0.114	0.121	0.130	0.828	0.856	0.070
SI	Slovenia									
SI03	Vzhodna Slovenija	0.389	0.381	0.162	0.292	0.416	0.769	0.595	0.645	0.424
SI04	Zahodna Slovenija	0.435	0.457	0.371	0.292	0.460	0.694	0.703	0.640	0.353
SK	Slovakia									
SK01	Bratislavský kraj	0.255	0.377	0.341	0.145	0.342	0.358	0.914	0.779	0.376
SK02	Západné Slovensko	0.178	0.178	0.065	0.107	0.211	0.381	0.699	0.836	0.206
SK03	Stredné Slovensko	0.232	0.281	0.065	0.077	0.190	0.256	0.541	0.606	0.302
SK04	Východné Slovensko	0.230	0.268	0.130	0.145	0.250	0.381	0.466	0.587	0.374
FI	Finland									
FI1B	Helsinki-Uusimaa	0.647	0.514	0.379	0.430	0.277	0.667	0.803	--	0.372
FI1C	Etelä-Suomi	0.635	0.596	0.547	0.854	0.507	0.770	0.502	--	0.367
FI19	Länsi-Suomi	0.643	0.530	0.401	0.395	0.298	0.552	0.563	0.559	0.386
FI1D	Pohjois- ja Itä-Suomi	0.615	0.481	0.370	0.450	0.263	0.518	0.380	0.361	0.441
FI20	Åland	--	--	--	--	--	--	--	--	--
SE	Sweden									
SE11	Stockholm	0.604	0.350	0.601	0.591	0.530	0.584	0.932	0.753	0.423
SE12	Östra Mellansverige	0.482	0.488	0.554	0.611	0.357	0.499	0.631	0.668	0.318
SE21	Småland med öarna	0.565	0.462	0.120	0.429	0.352	0.909	0.516	0.511	0.388
SE22	Sydsverige	0.525	0.299	0.476	0.708	0.490	0.773	0.602	0.678	0.378
SE23	Västsverige	0.620	0.307	0.523	0.520	0.441	0.684	0.699	0.645	0.364
SE31	Norra Mellansverige	0.439	0.613	0.181	0.425	0.335	0.638	0.444	0.467	0.410
SE32	Mellersta Norrland	0.535	0.468	0.150	0.333	0.273	0.597	0.466	0.599	0.375
SE33	Övre Norrland	0.517	0.449	0.451	0.406	0.283	0.391	0.452	0.567	0.299
UK	United Kingdom									
UKC	North East	0.239	0.864	0.303	0.352	0.217	0.319	0.470	0.618	0.889
UKD	North West	0.246	0.705	0.350	0.302	0.346	0.394	0.505	0.508	0.738
UKE	Yorkshire and The Humber	0.398	0.937	0.325	0.274	0.346	0.521	0.401	0.541	0.811
UKF	East Midlands	0.382	0.881	0.321	0.396	0.337	0.454	0.545	0.596	0.860
UKG	West Midlands	0.310	0.815	0.246	0.315	0.366	0.535	0.541	0.562	0.745
UKH	East of England	0.318	0.714	0.468	0.392	0.394	0.507	0.559	0.687	0.464
UKI	London	0.308	0.765	0.479	0.215	0.528	0.502	0.753	0.433	0.749
UKJ	South East	0.260	0.871	0.420	0.402	0.379	0.472	0.670	0.753	0.850
UKK	South West	0.222	0.638	0.289	0.391	0.372	0.570	0.552	0.613	0.895

		SMEs innovating in-house	Innovative SMEs collaborating with others	Public-private co-publications	EPO patent applications	Trade-mark applications	Design applications	Employment medium/high-tech manufacturing & knowledge-intensive services	Exports in medium-high and high-tech manufacturing	Sales of new-to-market and new-to-firm innovations
UKL	Wales	0.284	0.775	0.262	0.286	0.271	0.394	0.387	0.577	0.676
UKM	Scotland	0.311	0.844	0.359	0.288	0.292	0.315	0.416	0.528	0.406
UKN	Northern Ireland	0.205	0.815	0.219	0.233	0.354	0.412	0.387	0.493	0.551
CH	Switzerland									
CH01	Région lémanique	0.512	0.206	0.656	0.476	0.423	0.251	0.602	0.746	0.305
CH02	Espace Mittelland	0.533	0.220	0.371	0.443	0.312	0.251	0.588	0.746	0.864
CH03	Nordwestschweiz	0.703	0.148	0.975	0.602	0.501	0.328	0.756	0.746	0.584
CH04	Zürich	0.780	0.467	0.708	0.473	0.374	0.377	0.763	0.746	0.592
CH05	Ostschweiz	0.743	0.301	0.251	0.508	0.375	0.427	0.570	0.746	0.666
CH06	Zentralschweiz	0.696	0.234	0.291	0.490	0.623	0.632	0.670	0.746	0.687
CH07	Ticino	0.914	0.089	0.360	0.379	0.535	0.441	0.595	0.746	0.466
NO	Norway									
N001	Oslo og Akershus	0.610	0.570	0.496	0.305	0.256	0.311	0.677	0.115	0.478
N002	Hedmark og Oppland	0.598	0.602	0.101	0.193	0.130	0.152	0.290	0.115	0.353
N003	Sør-Østlandet	0.538	0.579	0.130	0.292	0.175	0.240	0.487	0.115	0.461
N004	Agder og Rogaland	0.543	0.617	0.265	0.358	0.187	0.152	0.505	0.115	0.391
N005	Vestlandet	0.586	0.614	0.388	0.260	0.137	0.276	0.527	0.115	0.456
N006	Trøndelag	0.561	0.785	0.565	0.486	0.117	0.250	0.441	0.115	0.414
N007	Nord-Norge	0.574	0.537	0.338	0.141	0.057	0.127	0.287	0.115	0.728
RS	Serbia									
RS11	Belgrade	0.453	0.206	0.039	--	0.111	0.000	--	0.292	0.477
RS12	Vojvodina	0.473	0.163	0.039	--	0.111	0.000	--	0.292	0.344
RS21	Šumadija and Western Serbia	0.454	0.064	0.039	--	0.111	0.000	--	0.292	0.565
RS22	Southern and Eastern Serbia	0.367	0.099	0.039	--	0.111	0.000	--	0.292	0.401

Annex 4: Regional profiles

This annex shows an example of a regional profile. Profiles for all regions are available on the RIS website: http://ec.europa.eu/growth/industry/innovation/facts-figures/regional_en

Région de Bruxelles-Capitale / Brussels Hoofdstedelijk Gewest (BE1)

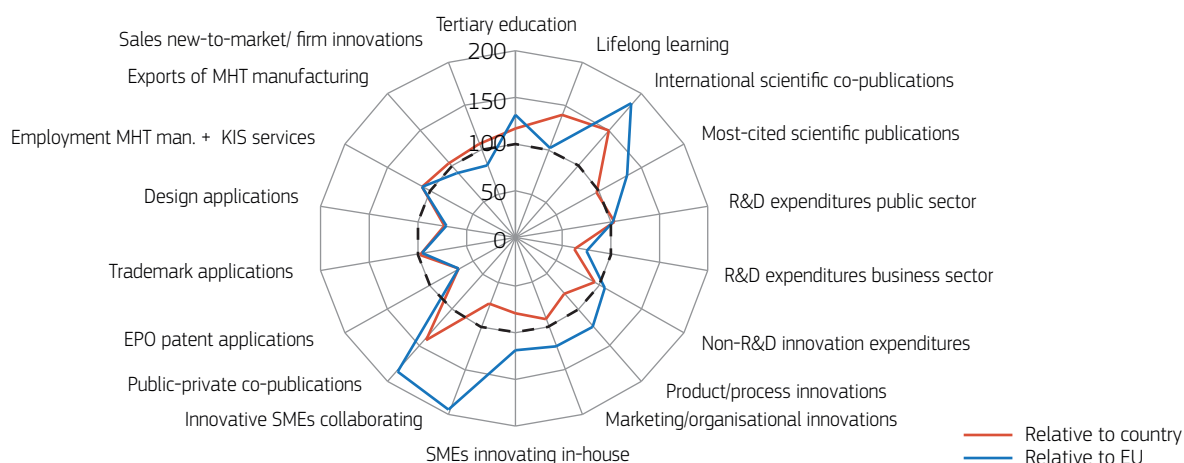
	Data	Normalised score	Relative to	
			BE	EU
Tertiary education	48.4	0.718	116	130
Lifelong learning	11.2	0.485	140	103
International scientific co-publications	3368.9	0.778	149	187
Most-cited scientific publications	12.0	0.721	97	132
R&D expenditures public sector	0.76	0.554	103	101
R&D expenditures business sector	0.75	0.336	63	74
Non-R&D innovation expenditures	±	0.320	±	±
Product/process innovations	±	0.547	±	±
Marketing/ org. innovations	±	0.472	±	±
SMEs innovating in-house	±	0.544	±	±
Innovative SMEs collaborating	±	0.696	±	±
Public-private co-publications	309.1	0.550	142	185
EPO patent applications	1.99	0.260	67	67
Trademark applications	5.41	0.376	98	96
Design applications	0.57	0.372	73	71
Employment MHT manuf./KIS services	16.1	0.577	109	108
Exports of MHT manufacturing	48.7	0.574	105	91
Sales new-to-market/firm innovations	±	0.388	±	±
Average score	--	0.515	--	--
Country EIS-RIS correction factor	--	1.012	--	--
Regional Innovation Index 2017	--	0.521	--	--
RII 2017 (same year)	--	--	96.7	114.8
RII 2017 (cf. to EU 2011)	--	--	--	117.8
Regional Innovation Index 2011	--	0.516	--	--
RII 2011 (same year)	--	--	97.5	116.6
RII - change between 2011 and 2017	--	1.2	--	--

± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.

The **Brussels region** is a **Strong + Innovator**, and innovation performance has increased over time.

The table on the left shows the normalised scores per indicator and relative results compared to the country and the EU. The table also shows the RII in 2017 compared to that of the country and the EU in 2017, the RII in 2017 to that of the EU in 2011, and performance change over time. The radar graph shows relative strengths compared to Belgium (red line) and the EU (blue line), highlighting relative strengths (e.g. Scientific publications) and weaknesses (e.g. Business R&D expenditures). The table below shows data highlighting possible structural differences. For instance, Brussels is a highly densely populated area with higher employment shares in services and public administration.

	BE1	BE	EU
Share of employment in:			
Agriculture & Mining (A-B)	0.6	1.3	5.1
Manufacturing (C)	5.2	13.2	15.5
Utilities & Construction (D-F)	7.5	8.6	8.5
Services (G-N)	72.9	67.3	63.2
Public administration (O-U)	14.2	9.5	7.1
Average employed persons per enterprise (firm size), 2013-2014	4.6	4.6	5.4
GDP per capita (PPS), 2014	57900	33000	27600
GDP per capita growth (PPS), 2010-2014	0.79	1.82	2.00
Population density, 2015	7408	372	117
Urbanisation, 2015	100.0	84.9	74.1
Population size, 2016 (000s)	1200	11310	510280



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Regional **Innovation Scoreboard** 2017

ET-BC-17-001-EN-N



Publications Office

ISSN 2315-2125
ISBN 978-92-79-67688-8
doi:10.2873/593800